The PHOTOFACT Servicer

SET 451 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ AUGUST 1959

CONTENTS PHOTOFACT SET 451

TRADE NAME AND MODEL	SET AND FOLDER NO.
TELEVISION RECEIVERS	
TRUETONE	
2DC1930A, B, 2DC1932A, B, 2DC1934A, B, 2DC1936A, B, 2DC2930A, B, 2DC2932A, B	451-1
WESTINGHOUSE	
H-21K272, 273, 274, 275, 276, H-21KU272, 273, 274, 275, 276 (Ch. V-2375-1, -2)	451-2
OTHER EQUIPMENT	
ARVIN	
1597, 7095, 7096, 7097 (Ch. 1.47800, 11.46000, 11.46400)	451-3
CHEVROLET	
987893	451-4
COLUMBIA RECORDS	
642, 682	451-5
DeWALD	
M-1200	451-6
GENERAL ELECTRIC	
A1-320	451-7
T135A	451-8
LEAK	
Stereo 50	451-9
MOTOROLA	
13KT15B, CW, M (Ch. HS-677)	451-10
NEWCOMB	
E-10A	451-11
OLYMPIC	
C44B	451-12
OLYMPIC-CONTINENTAL	
GB374	451-13
RCA VICTOR	
SHP14 (Ch. RS-175A)	451-14
SILVERTONE	
9007, 9008, 9009, 9010 (Ch. 132.45600)	451-15
TOSHIBA	
6TR-186	451-16
WESTINGHOUSE	
H-45AC1, H-45AC2	451-17
VIKING	
RP61-S	451-18
ZENITH	
HF117, E, R, HF118E, R (Ch. 5B22)	451-19
Royal 1000D	451-20
SF119, E, R, SF120E, R, SF125, E, R (Ch. 5B23)	451-21

This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

IN THIS ISSUE OF THE SERVICER:

Cadillac Model

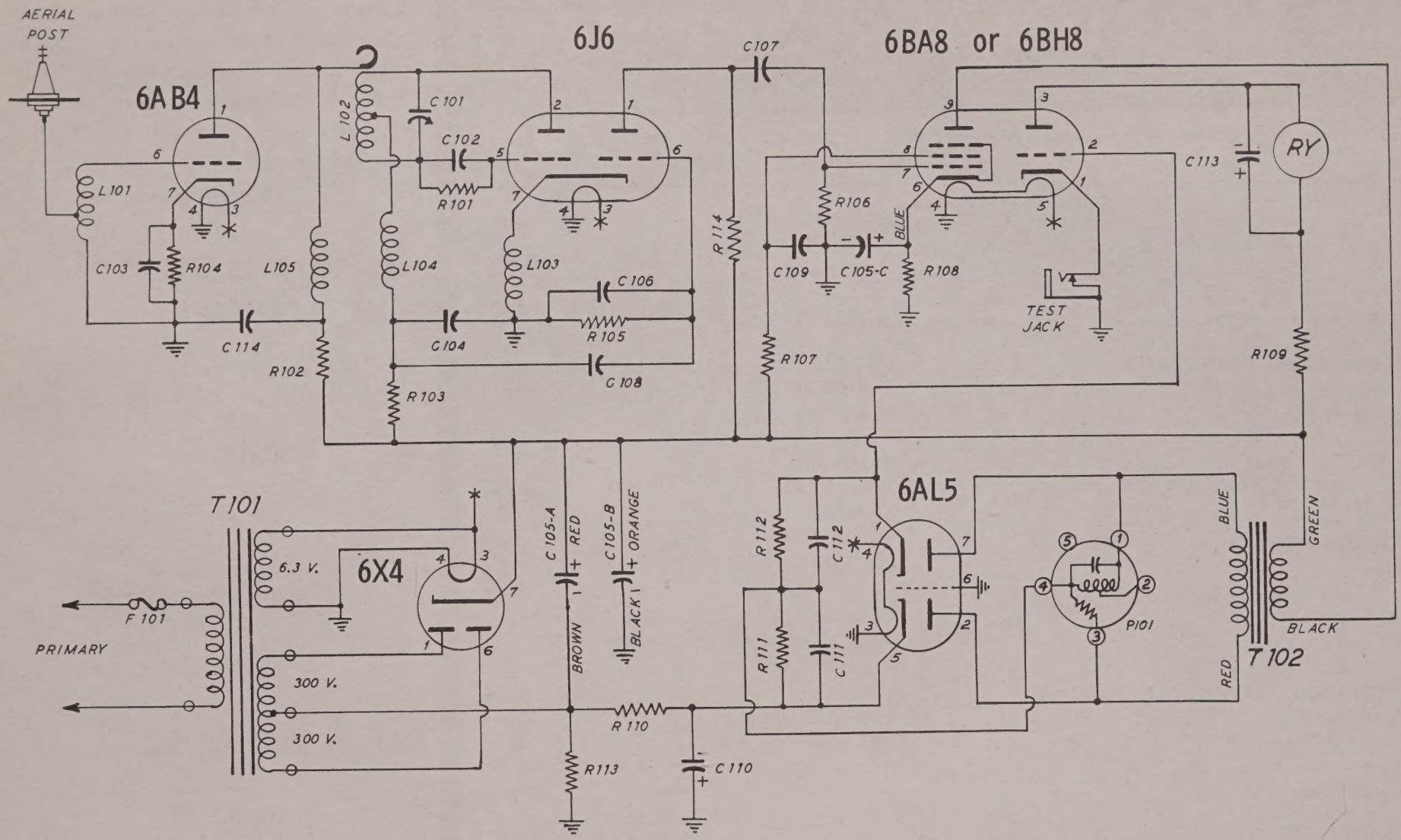
7253207

Multi-Elmac

Model RP

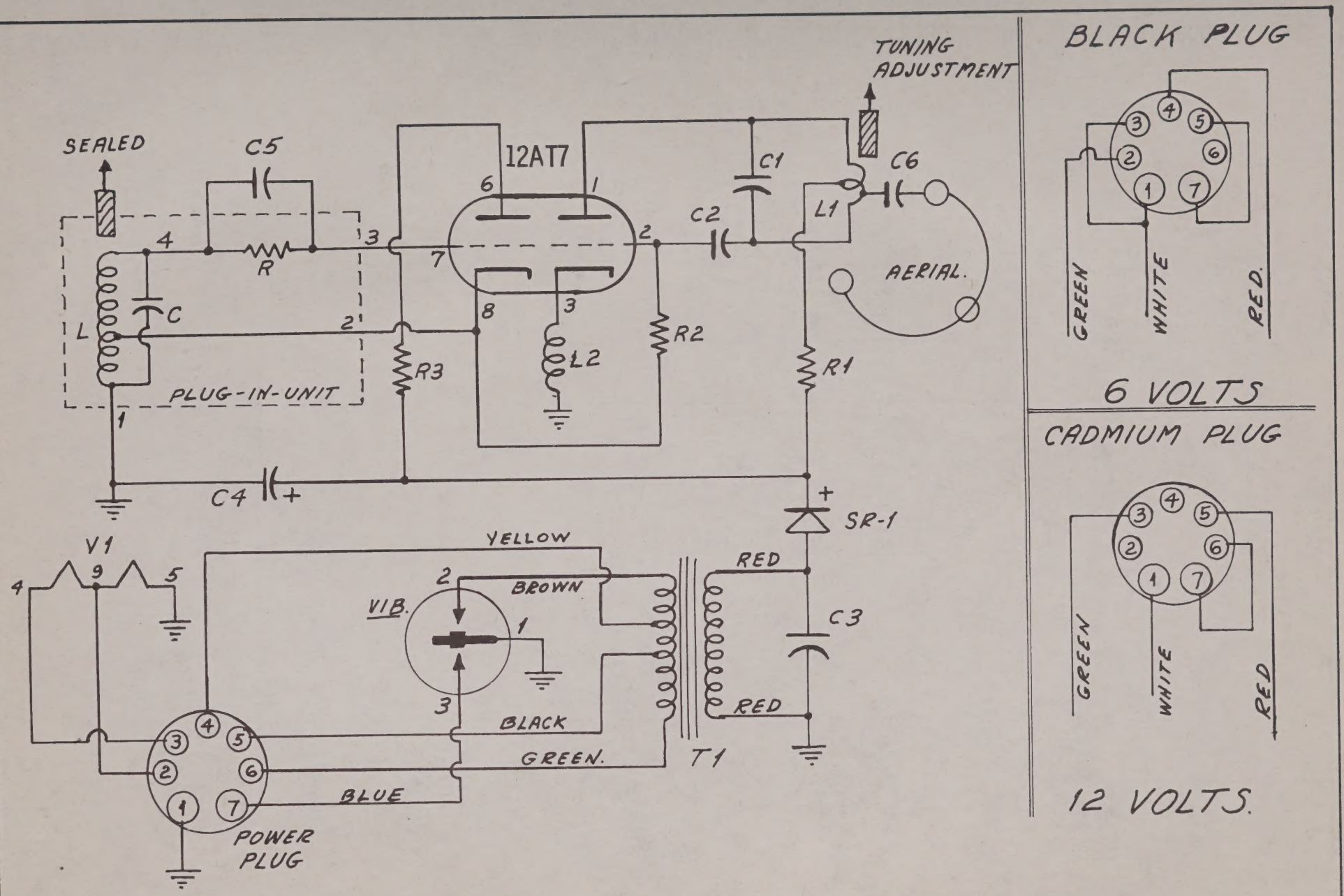
Multi- Elmac

Model TP



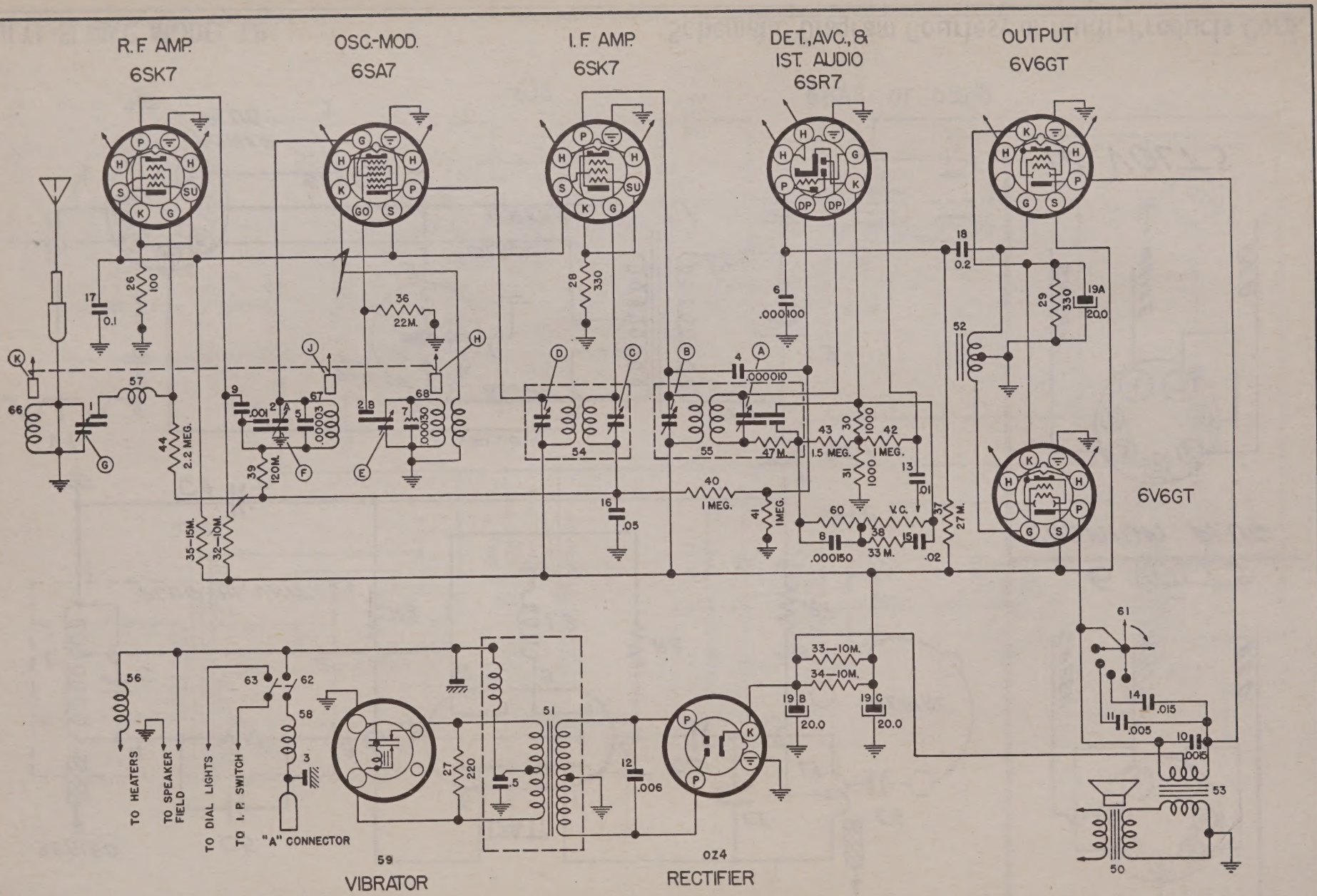
MULTI-ELMAC MODEL RP

Schematic Diagram Courtesy of Multi-Products Corp.



MULTI-ELMAC MODEL TP

Schematic Diagram Courtesy of Multi-Products Corp.



CADILLAC MODEL 7253207

Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.

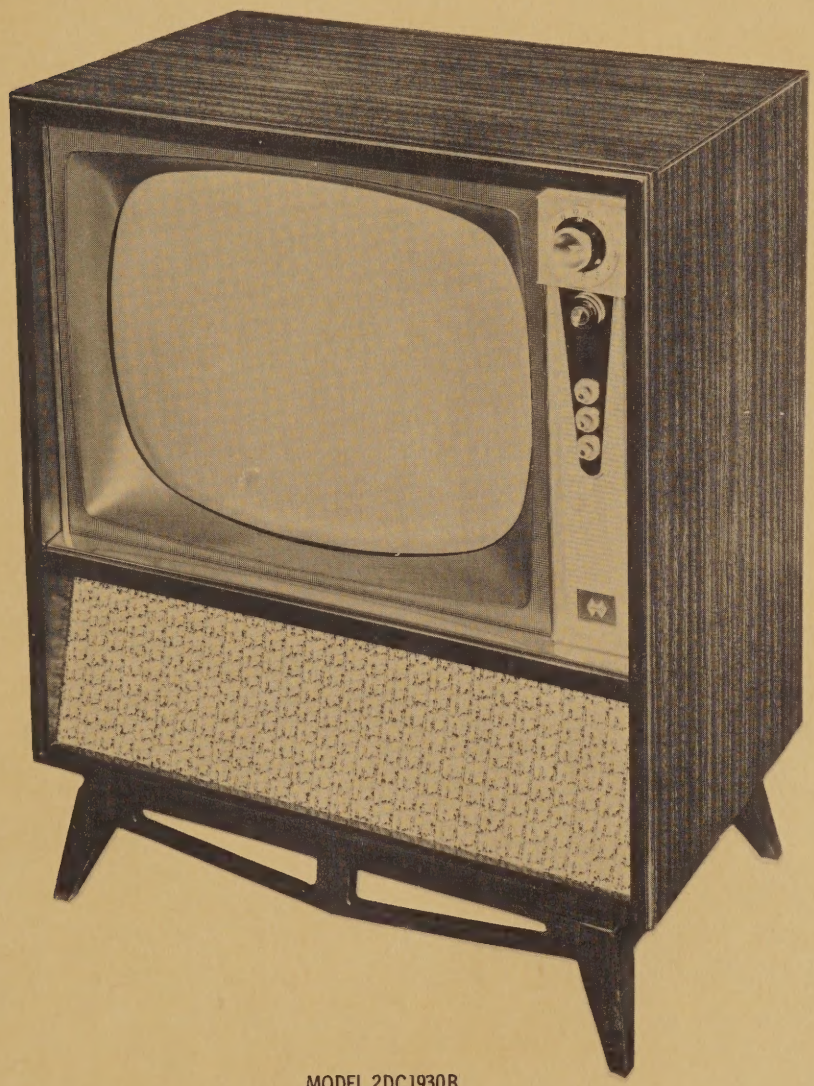
PHOTOFACT* Folder

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

TRUETONE MODELS 2DC1930A, B, 2DC1932A, B, 2DC1934A, B, 2DC1936A, B, 2DC2930A, B, 2DC2932A, B



MODEL 2DC1930B

TRUETONE MODELS 2DC1930A, B, 2DC1932A, B, 2DC1934A, B, 2DC1936A, B, 2DC2930A, B, 2DC2932A, B

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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SET 451 FOLDER 1

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

TRUETONE MODELS 2DC1930A, B, 2DC1932A, B, 2DC1934A, B, 2DC1936A, B, 2DC2930A, B, 2DC2932A, B

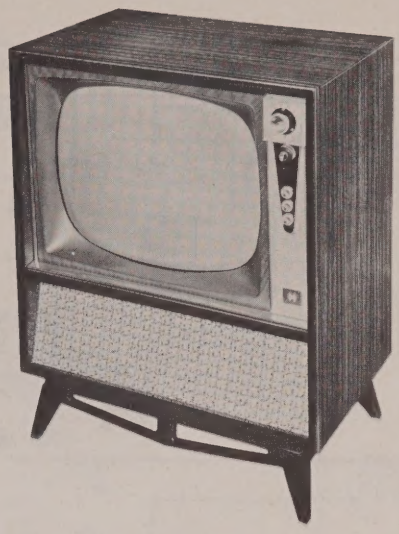
TRUETONE MODELS 2DC1930A, B, 2DC1932A, B, 2DC1934A, B, 2DC1936A, B, 2DC2930A, B, 2DC2932A, B

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 7 push-on type knobs.
2. Remove 6 wood screws holding rear cover. Remove the rear cover.
3. Remove speaker leads.
4. Remove 2 screws holding antenna terminal board.
5. Remove 2 wood screws holding top chassis braces.
6. On models having side mounted controls, remove 1 hex screw holding bracket to cabinet and hex screw painted red near Vertical Output transformer holding control panel. Swing control panel back into cabinet to clear shafts.
7. Remove 4 bottom chassis bolts.
8. Remove chassis.

SEE PICTURE TUBE REMOVAL PAGE 16



MODEL 2DC1930B

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.

TRADE NAME	Truetone MODELS 2DC1930A, B, 2DC1932A, B, 2DC1934A, B, 2DC1936A, B, 2DC2930A, B, 2DC2932A, B
SUPPLIER	Western Auto Supply Co., 2107 Grand Avenue, Kansas City, Mo.
TYPE SET	Television Receiver
TUBES	VHF-Fourteen, UHF-Fifteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 160 Watts, 1.45 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENT

For touch-up adjustment of the VHF Oscillator, it is necessary to remove the chassis from the cabinet. (See disassembly instructions.)

SAFETY GLASS REMOVAL

Remove 5 wood screws holding metal trim strip at top of safety glass. Tilt top of glass out and lift up to remove.

RANGE CONTROL

Observe the picture and advance the Range control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

FOCUS

No provision is made to vary the focus on this receiver. (Some sets may be equipped with a Beam Alignment Magnet which may be adjusted for best focus.)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the Horizontal Oscillator, it is necessary to remove the rear cover and supply power to set. Set the Horizontal Hold at the center of its range and adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Buzz control for MINIMUM buzz and maximum sound. (For location, see tube placement chart.)

FUSE DEVICE

A 7.5Ω fusible resistor (R64) is used for low voltage power supply protection. (For location, see tube placement chart.)

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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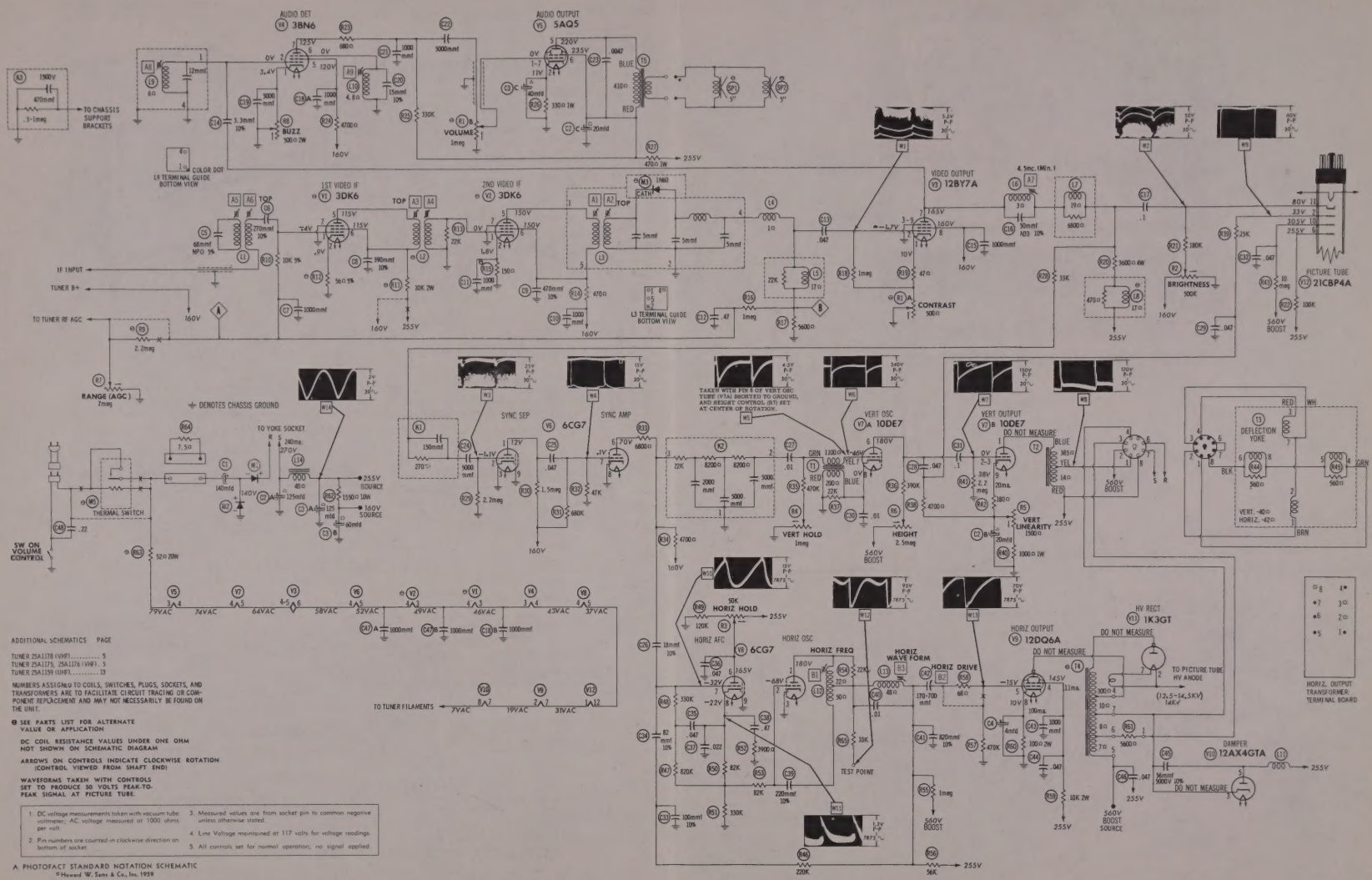
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

J109R

SET 451 FOLDER 1



ADDITIONAL SCHEMATICS PAGE

TUNER 25A1178 (VHF)..... 5
TUNER 25A1175, 25A1176 (VHF)..... 5
TUNER 25A1159 (UHF)..... 13

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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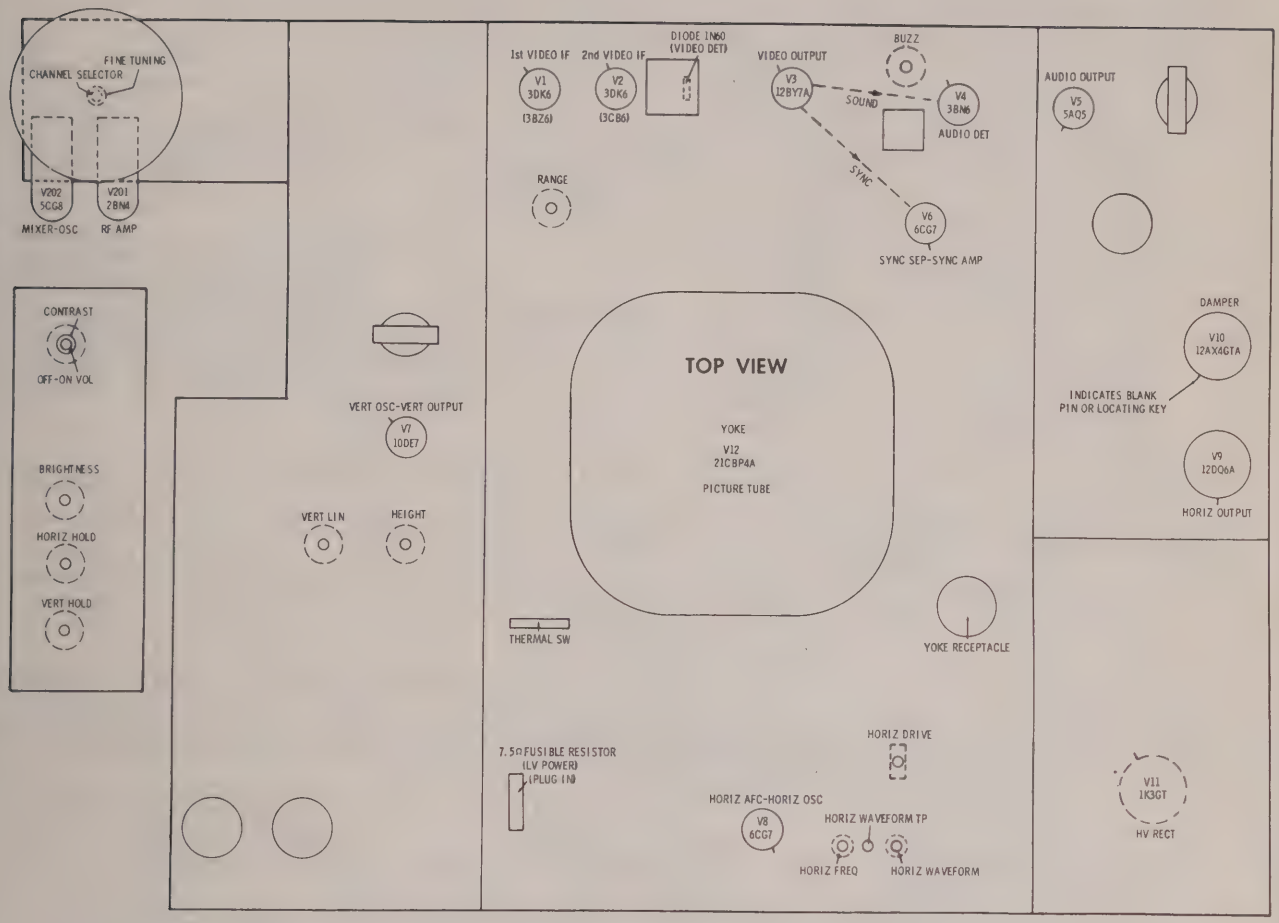
TRUETONE MODELS 2DC1930A, B, 2DC1932A, B, 2DC1934A, B, 2DC1936A, B, 2DC2930A, B, 2DC2932A, B

FOLDER 1

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

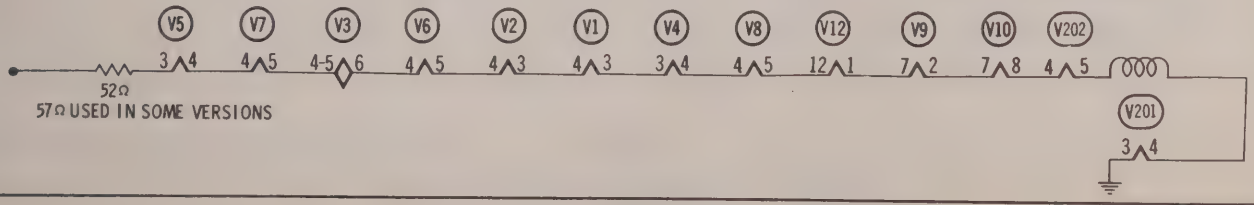
POWER SUPPLY FAILURE
No raster, no sound Fusible Resistor (7.5Ω), Rectifier (B+)

SWEEP FAILURE
No raster, has sound V8, V9, V10, V11, V12, Rectifier (B+)
No vertical deflection V7
Poor vert. linearity or foldover V7
Poor horiz. linearity or foldover V8, V9, V10
Narrow picture V8, V9, V10, Rectifier (B+)
Vert. off freq. V7
Horiz. off freq. V8

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, Diode (Video Det), V3
No pic, no sound, has snow V201, V202
No pic, has sound, has raster V3, V12
Has pic, no sound V4, V5

SYNC FAILURE
No vert. sync V6
No horiz. sync V6, V8
No vert. or horiz. sync V6

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 7 volt bias supply to point Ⓐ . Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.01mfd	High side to pin 1 (grid) of 2nd Video IF. Low side to chassis. Adjust output for 4VP-P on scope.	44.0MC (10MC Swp)	42.4MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 47K to point Ⓑ . Low side to chassis. (Across Video Det. load)	A1, A2	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. A1 controls marker position and A2 controls gain and symmetry.
2.	"	High side to pin 1 (grid) of 1st Video IF. Low side to chassis. Adjust for 4VP-P on scope.	"	42.4MC 43.5MC 44.5MC 45.75MC	"	"	A3, A4	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. A3 controls marker position and A4 controls gain and symmetry.
3.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	41.25MC 42.4MC 43.5MC 44.5MC 45.75MC	"	"	A5, A6, & Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. Adjust A5 to place 41.25MC marker in trap notch.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.01mfd	High side to pin 2 (grid) of Video Output. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	AC probe to pin 11 (cathode) of picture tube. Common to chassis. Use 0-10V AC scale.	A7	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT

Tune in a TV station and reduce the signal strength at the antenna terminals until a hiss is heard in the sound similar to super-regeneration.
Adjust A8, A9 and the Buzz control (R8) for maximum undistorted sound with MINIMUM buzz.
If the hiss disappears during adjusting, further reduce the signal strength.

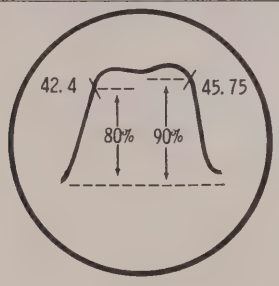


FIG.1

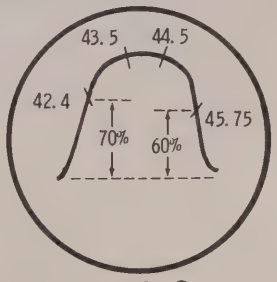


FIG.2

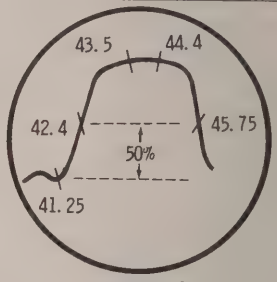


FIG.3

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 6

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Suggested Alignment Tools:
B1, B3.... GENERAL CEMENT #8271, 8279
WALSCO #2524, 2527
B2 ..... 1/4" Nut Driver

Turn the Horizontal Hold fully clockwise. Tune in a station and adjust the Horizontal Frequency slug (B1) until the picture is just about to tear out of sync as can be seen at the top of the picture.

Turn the Contrast fully counterclockwise and the Brightness clockwise so that the picture appears washed out. Turn the Horizontal Drive trimmer (B2) clockwise until white vertical bars (drive lines) appear in the left center portion of the raster, then counterclockwise until the white bars just disappear.

Connect the vertical amplifier of a scope to point Ⓒ . Low side to chassis. Adjust the Horizontal Waveform slug (B3) until the round and sharp peaks of the waveform are equal in amplitude. See Fig. 4. Keep the picture in sync during this adjustment.

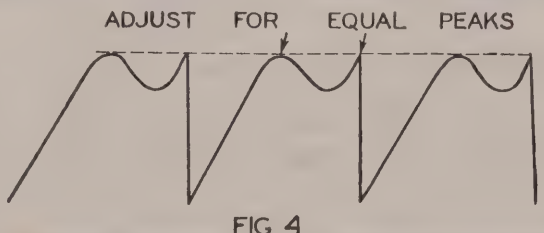
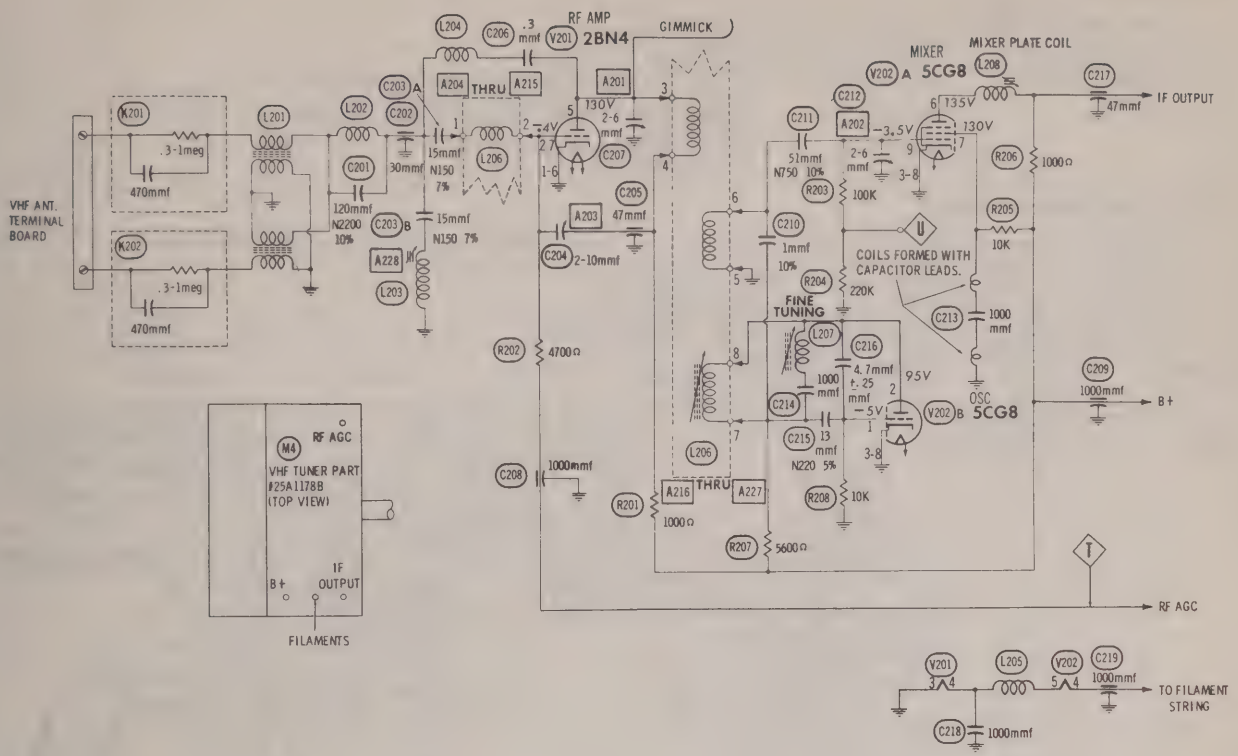


FIG. 4



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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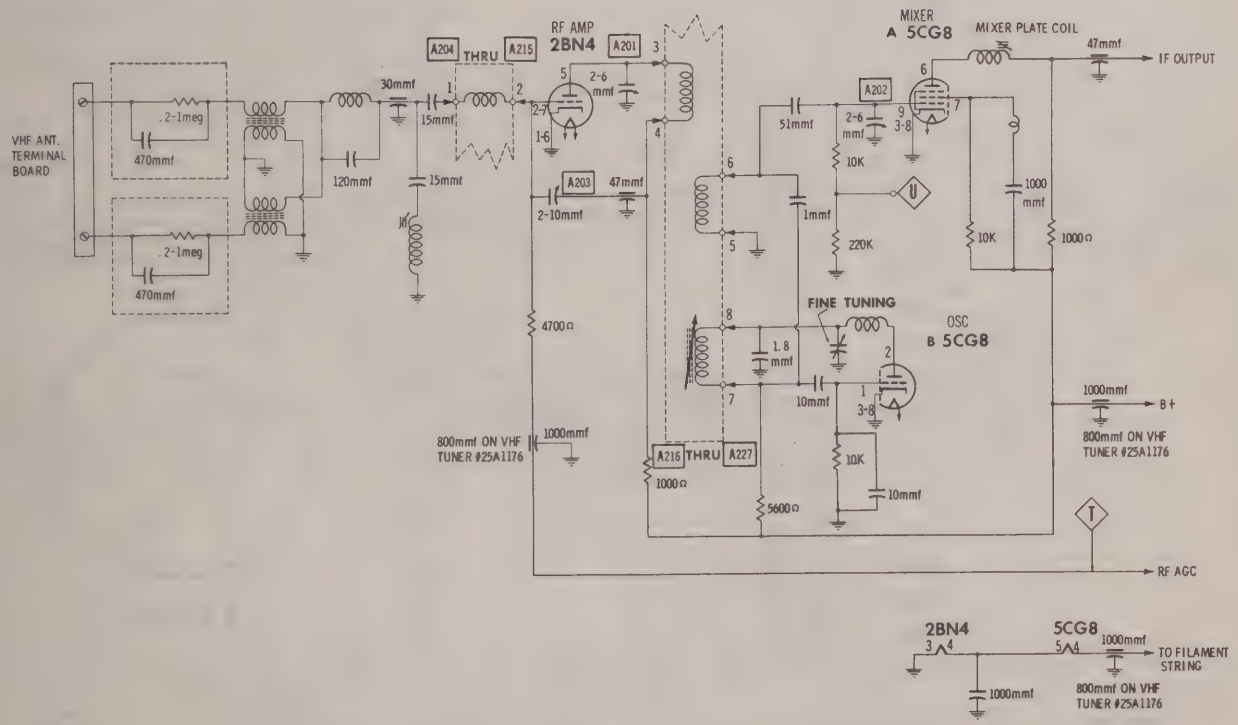
VHF TUNER 25A1178



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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VHF TUNER 25A1175, 25A1176

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER to PROTECT the Test Equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools:
A201, A202, A203 .... GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A216 thru A227 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531
A228 ..... GENERAL CEMENT #9296, 9297
WALSCO #2546, 2547

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect the negative lead of a 2.5 volt bias supply to point Ⓣ. Positive to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A201, A202, A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope. Recheck A201.
2.	"	"	213MC	211.25MC 215.75MC	13	"	A204	Adjust for maximum amplitude of response similar to Fig. 201. Adjust by expanding or compressing coil turns.
			207MC	205.25MC 209.75MC	12		A205	
			201MC	199.25MC 203.75MC	11		A206	
			195MC	193.25MC 197.75MC	10		A207	
			189MC	187.25MC 191.75MC	9		A208	
			183MC	181.25MC 185.75MC	8		A209	
			177MC	175.25MC 179.75MC	7		A210	
			85MC	83.25MC 87.75MC	6		A211	
			79MC	77.25MC 81.75MC	5		A212	
			69MC	67.25MC 71.75MC	4		A213	
			63MC	61.25MC 65.75MC	3		A214	
			57MC	55.25MC 59.75MC	2		A215	

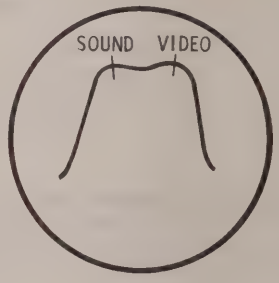


FIG.201

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect the negative lead of a 4.5 volt bias supply to point Ⓣ. Positive to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Detector load.	A216	Adjust to place sound marker in trap notch as in Fig. 202. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A224	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

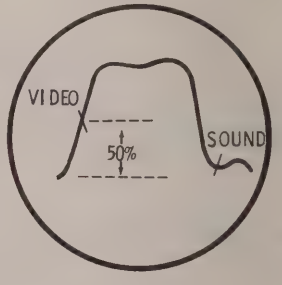


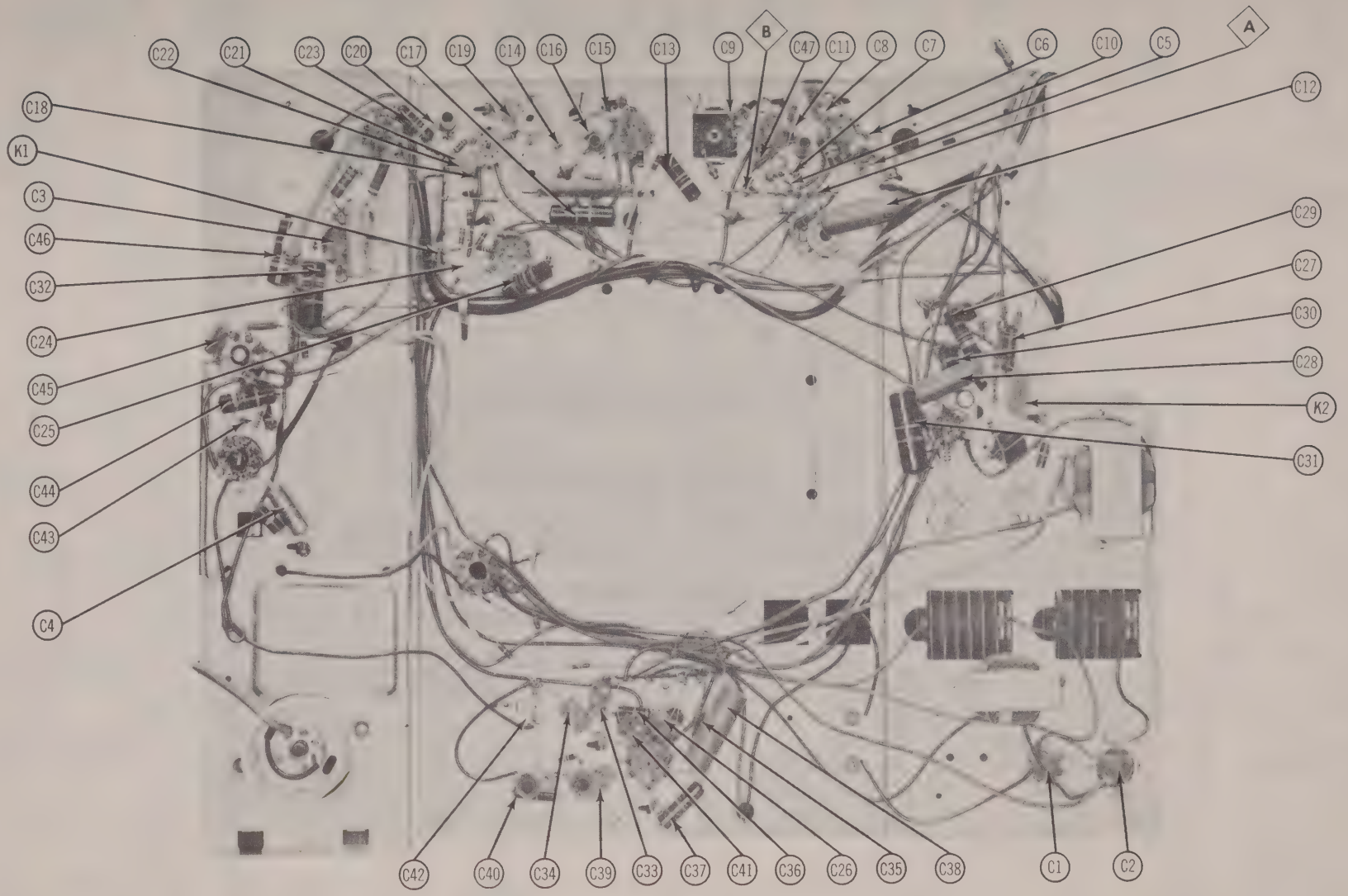
FIG.202

UHF ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

TRAP ADJUSTMENT

Some types of interference may be reduced by adjusting A228. Tune in the channel where interference occurs and adjust A228 for MINIMUM interference while observing the picture.



CHASSIS BOTTOM VIEW - CAPACITOR & ALIGNMENT IDENTIFICATION

TRUETONE MODELS 2DC1930A, B, 2DC1932A, B, 2DC1934A, B, 2DC1936A, B, 2DC2930A, B, 2DC2932A, B

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp	3DK6	3DZ6 *
V2	2nd Video IF Amp.	3DK8	3CB6 *
V3	Video Output	12BY7A	
V4	Audio Det.	12AN6	
V5	Audio Output	6AQ8	
V6	Sync Sep. -Sync Amp.	6CG7	

ITEM No	USE	TYPE	NOTES
V7	Vert Osc -Vert Output	10DE7	
V8	Horiz. AFC-Horiz. Osc.	6CG7	
V9	Horiz. Output	13DQ6A	
V10	Damper	12AX4GTA	
V11	HV Rect.	1K3GT	

* Alternate.

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	TRUETONE PART No.	GENERAL ELECTRIC PART No	RCA PART No	SYLVANIA PART No	
V12	21CBP4A	21BTP4 1	21CBP4-A 2	21CBP4/ 21CBP4A ①	① "Aluminised" Add Ion Trap. ② "Silverama" ③ ③ "Silver Screen 96"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No	PYRAMID PART No	SPRAGUE PART No.	NOTES
C1	40	150	45X421	AFH51-23	XA0281	FP117	TMS-24	TVL-1428	
C2A	125	300	45X431	AFH40-40	XC0733.2	FP218 TC36		TVL2-3574.3*	
B	30	300							
C	30	50							
C3A	125	300	45X420	AFH3-99-82	C0733.7	FP330.3T	TMT-321	TVL-3574.6	
B	60	300							
C	40	50							
C4	4	50	45X418	PRS150V4	BBR4-50	TT50X4	TD-4-50	TVA-1402	

* Not normally in distributor's stock.
Available thru distributor on order to manufacturer.
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

FIXED CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C5	68		NPO 5%		NPO-DI-68	DTZ-68	C0G68C	CNO-468	5TCC-Q68S 5%	
C6	270		10%		DI 270	MD-271	L10T27		5GA-T27S 10%	
C7	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C8	390		10%		DI 390	MD-391	L10T39		5GA-T39S 10%	
C9	470		10%		DI 470	MD-471		JL-347	5GA-T47S 10%	
C10	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C11	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C12	.47	200			P288N-47		CUB2P47	GEM-2047	2TM-P47	
C13	.047	200			P488N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C14	3.3		10%		NPO-3I 3.3	TCZ-3R3	C10V33C	CNO-533	5TCC-V33S 10%	
C15	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C16	30		N33 10%							
C17	1	400			P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C18A	1000			80X3	BPD-2X001	DD2-102	BYD6DD1	B-210	5HK-2D1	
B	1000							B-210		
C19	5000				BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C20	5		10%		DI 15	DD-150	L10Q15	CNO-415	5TCC-Q15S 10%	
C21	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C22	5000				BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C23	.0047	600			P688N-0047	DF-472	CUB6D47	GEM-6247	6TM-D47	
C24	5000				BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C25	.047	400			P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C26	18		10%	RCM20B180K	1469-000018	TCZ-18	22R5Q18	CNO-418	MS-418	
C27	01	400			P488N-01	DF-103	CUB4S1	GEM-411	4TM-S1	
C28	.047	600			P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C29	.047	200			P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C30	01	400			P488N-01	DF-103	CUB4S1	GEM-411	4TM-S1	
C31	.1	600			P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C32	.047	600			P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C33	100		10%		1469-0001	TCZ-100	22R5T1	MCB225	MS-31	
C34	82		10%	RMC20B820K	1469-000082	TCZ-82	22R5Q82	CNO-482	MS-482	
C35	.047	200			P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C36	.047	400			P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C37	.022	200			P288N-022		CUB2S22	GEM-4122	2TM-S22	
C38	.47	200			P288N-47		CUB2P47	GEM-2047	2TM-P47	
C39	220		10%		1469-00022	TCZ-220	22R5T22		MS-322	
C40	.01	400			P488N-01	DF-103	CUB4S1	GEM-411	4TM-S1	
C41	820		10%	RCM20B821K	1464-00082		1R5T82		MS-382	
C42	170-700			17AT71						
C43	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C44	.047	400			P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C45	56	5000	10%	47X755						
C46	.047	600			P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C47A	1000			80X3	BPD-2X001	DD2-102	BYD6DD1	B-210	5HK-2D1	
B	1000							B-210		
C48	.22	400			P488N-22		CUB4P22	GEM-4022	4TM-P22	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA TRUETONE PART No	CENTRALAB PART No	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500Ω	½	76X39	F1-2	RTV-546			Contrast
B	1meg	½		R2-51	Not Req.	↑ Q1-1074	↑ UE37B98	Volume
C	Switch			KN-1	Not Req.			Power Off-On
R2A	500K	½	40X425	B-59	A47-500K-S	Q11-133	TA55L	Brightness
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	50K	½	40X434	B-51	A47-50K-Z	Q11-123	TA54L	Horiz. Hold
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	1meg	½	40X435	B-69	A47-1meg-S	Q11-137	TA16L	Vert. Hold
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R5A	1500Ω	½	40X399	AB-8	A47-1500-S	Q11-109	PTA152L	Vert. Lin.
B	Shaft			AE-19	RN-3	TQ	Not Req.	
R6A	2.5meg	½	40X398	EK-85	A47-2.5meg-S	Q11-239	PTA26L	Height
B	Shaft			Not Req.	RN-3	TQ	Not Req.	
R7	1meg	½	40X455					Range (AGC)
R8	500Ω	2(WW)	40X397		39-500		FL-500	Buss

† "Concentrikit" Equivalent: K-2 Kit with Base Elements & Shafts; BU-105, P6-102 (Panel), BU-137, RI-126(Rear), 78-1 (Switch)
†† "STA-LOC" Equivalent: FA751L, OF1125A, RO161, BS1875, US-41.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	TRUETONE PART No	NOTES
R9	2.2meg		B84235	Note 1
R10	10K 5%			
R11	10K	2W		Note 2
R12	56Ω 5%			Note 3
R13	22K			
R14	470Ω			Note 4
R15	150Ω			
R16	1meg			
R17	5600Ω			
R18	1meg			
R19	47Ω			
R20	3600Ω	6W	43X331	
R21	180K			
R22	100K			
R23	820Ω			
R24	4700Ω			
R25	330K			
R26	330Ω	1W		
R27	470Ω	1W		
R28	33K			
R29	2.2meg			
R30	1.5meg			
R31	680K			
R32	47K			
R33	68000Ω			
R34	4700Ω			
R35	470K			
R36	390K			
R37	22K			

ITEM No.	RATING OHMS	RATING WATT	TRUETONE PART No	NOTES
R38	4700Ω			
R39	15K			
R40	1000Ω	1W		
R41	2.2meg			
R42	180Ω			
R43	10meg			
R44	560Ω			
R45	560Ω			
R46	330K			
R47	330K			
R48	330K			
R49	120K			
R50	82K			
R51	330K			
R52	100K			
R53	82K			
R54	22K			
R55	1meg			
R56	56K			
R57	470K			
R58	680			
R59	10K	2W		
R60	100Ω	2W		
R61	56000Ω			
R62	1550Ω	10W	43X307	
R63	53Ω	20W	43X302	Note 5
R64	7.5Ω		43X280	
R65	10K			

Note 1. Not used in some versions.
Note 2. Some versions may use 470Ω in this application.
Note 3 Some versions may use 47Ω 5% in this application.
Note 4. Some versions may use 1800 in this application.
Note 5. Some versions may use 51Ω 10W in this application.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA TRUETONE PART No	Meissner PART No.	Merit PART No	Miller PART No	Ram PART No	NOTES
L1A	1st Video IF	9A2436			6321 *		
B	41.25MC Trap						
L2	2nd Video IF	9A2444					
L3	3rd Video IF	9A2425					Includes 30 microhenries Resonant choke
L4	Resonant Choke	9A2375					30 Microhenries
L5	Shunt Peaking Coil	36A22		19-3300 ▲	TV-198 ▲	6155 ▲	290 Microhenries, wound on 22K resistor
L6	4.5MC Trap	9A2366		20-1004	TV-151	1469 +	SF-3
L7	Series Peaking Coil	36A28		19-4400 ▲	TV-190 ▲	6132 ▲	VP-7 ▲
							350 Microhenries, wound on 68000 resistor
L8	Shunt Peaking Coil			19-3300 ■	TV-199 ■	6155 ■	290 Microhenries, wound on 470Ω resistor
	Shunt Peaking Coil	36A38		19-4301 ■	TV-197 ■	6154 ■	220 Microhenries, wound on 470Ω resistor ①
L9	Sound IF	9A2434		17-1038			
L10	Quadrature Coil	9A2367		20-1005	TV-121	1480	
L11	RF Choke	9A2380		19-1001	RC-562	4604	1 5 Microhenries

① Alternate part used in some versions.
* Disregard secondary winding.
▲ Parallel with 22K resistor.
■ Parallel with 470Ω resistor.
+ Disregard tap.
▲ Parallel with 68000 resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA TRUETONE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	NOTES
L12	72Ω		9A2371		TV-166	6211 *		HS-7	Horiz. Freq. tapped @ 50Ω
L13	48Ω		9A2372			6315		HS-5 *	Horiz. Waveform
									* Enlarge mounting hole.

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	RATINGS DC RES.	RATINGS INDUCTANCE (@ CURRENT 1000 ~\)	REPLACEMENT DATA TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L14	.260A	40Ω	1 Hy.	52X95-9	26C43 ①	C-2991 ①		C-2326 ①	26C43 ①	C-27X

① Drill new mounting hole.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	Vert. Osc.	54X19	26A03	A-3003	V405	VBO19	A-8125	26A03	A-97X
T2	Vert. Output	51X186-2	26S73 ③	A-2855	V307① ②	VO26 ③	VO-108	26S73 ③	A-118X ②③
T3	Yoke-Horiz. (34MH) (90°)-Vert. (39MH)	9A3403 ④	Y-16 ⑦ ⑧	MDF-92 ⑤ ⑥	Y80F18/45 ⑤ ⑥		DY-16A ⑤ ⑥ ⑦		Y-16 ⑤ ⑥
	Rear Cover & Centering Device	2A435							NW21 ⑧ YC-1
	Yoke Retainer	8X347							CL-1
	Yoke Clamp	30X611							
T4	Horiz. Output	53X368G	FLY-143	HVO-157	X174	EFR189	HO-283 *	FLY-143	D-121 *
	Alt. Horiz. Output	53X362	③ * ⑧	③ * ⑧		③ ⑤ * ⑧		③ * ⑧	

① Connect as autoformer.
② Use 8 : 1 turns ratio.
③ Drill new mounting hole(s).
④ Includes resistors (R44, R45).
⑤ Use original rear cover and centering device.
⑥ Connect same as original.
⑦ Remove Horizontal Damping Network from yoke.
⑧ Trim 1½" from top of terminal board.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	4	5	5		5	8	4	4
	7	2	2		2	3	8 & 7	3
	8	6	6		6	2	2	2
	5	1	1		1	1	5	1
Special Notes →		①	①		①			①

① Remove one turn from filament winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	6100Ω	3-4Ω	51X188	34851 ①	A-3026	AU-603 ①	A-3877 ①	34851 ①	S-8X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA TRUETONE PART No.	QUAM PART No.	NOTES
SP1	5"	PM	6-8Ω	12A550 ①	5A1SZ6.6 ①	① Connect in parallel and phase.
SP2	5"	PM	6-8Ω	12A550 ①	5A1SZ6.6 ①	② Alternate.
	6"	PM		12A527 ②		

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRUETONE PART No	REPLACEMENT DATA	
K1	Sync Coupling	150mmf, 270K	76X15		
K2	Vert. Integrator	2000mmf, 5000mmf, 5000mmf, 22K, 82000, 82000	76X7	Aerovox	PA-110
				Centralab	PC-100
				Cornell-Dubilier	115TMI
				Sprague	V-1/V-3
K3	Chassis Isolation	470mmf 2 1500V, .3-1meg	76X11	Centralab	RC-471
				Sprague	ACI-1

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA TRUETONE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.240A	66X14 ①	1236AH 1	T300 1	300 1	1 Selenium Type
			HA504 2	TV500 2	40K 2	2 Silicon Type
M2	.340A	66X14 ①	1236AH 1	T300 1	300 1	
			HA504 2	TV500 2	40K 2	

CRYSTAL DIODES

ITEM No.	ORIG TYPE	REPLACEMENT DATA TRUETONE PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M3	1N80 *		1N80	1N80	Video Detector (Pigtail)
					* Some versions may use CK706 in this application

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M4	Tuner	25A-1176B	VHF
	Tuner	25A-1175	VHF
	Tuner	25A-1176	VHF
	Tuner	25A-1159	UHF
M5	Thermal Switch	2A494-B	
	Magnet	2A478	Beam Alignment, may be used to improve focus

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

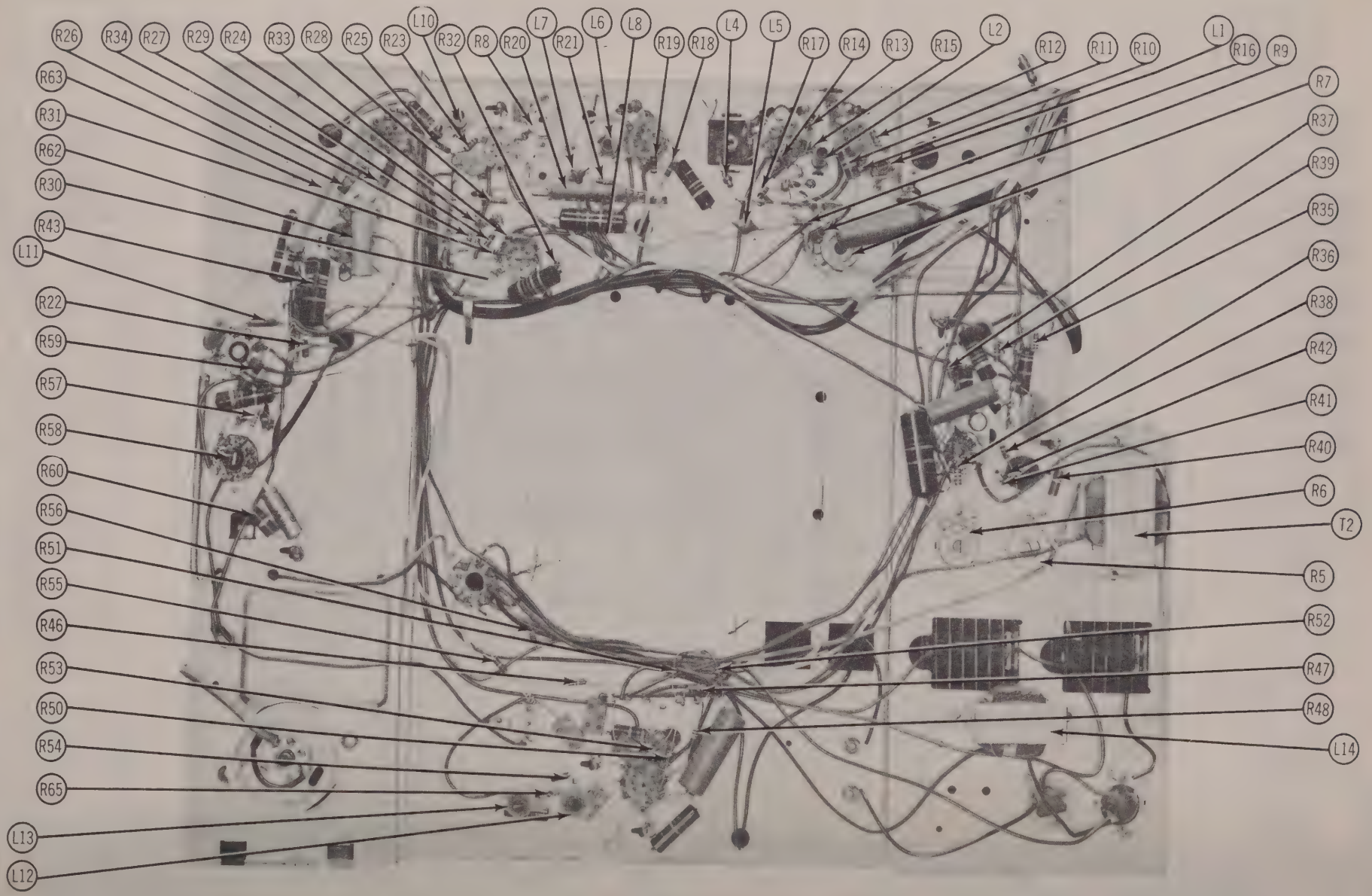
NAME	PART NO.	DESCRIPTION
Safety Glass	17X190-1	
Mask	S-38A656	Gold
Mask	S-38A653	Silver
Knob	10A899-2	Channel Selector
Knob	10A895-2	Fine Tuning
Knob	10A933-3	Contrast
Knob	10A853-1	Volume
Knob	10A934-2	Secondary Controls

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8484 (Flat) or 8484 (Round) - 4 Conductor 8495 (Round) - 5 Conductor 8498 (Round) - 8 Conductor

TRUETONE MODELS 2DC1930A, B, 2DC1934A, B, 2DC1936A, B, 2DC2930A, B, 2DC2932A, B

FOLDER 1



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

TUNER PARTS LIST AND DESCRIPTIONS

25A1178

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	2BN4	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	5CG8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120		N2200 10%	13L-031						
C202	30			13M420U300J-01						
C203A	15		N150 7%	13L8PG150N2						
B	15									
C204	2-10			31B-206-08		829-10				
C205	47			13M130U470J-01						
C206	.3			13D-111-42						
C207	2-6			31B-206-01		829-6				
C208	1000			13M420EA102Z-01	EF-1000	MFT-1000				
C209	1000			13M420EA102Z-01	EF-1000	MFT-1000				
C210	1.0		10%	13D-111-35	NPO-SI 1.0	TCZ-1.0		CNO-510	5TCCB-V1S 10% *	
C211	51		N750 10%		N750-DI 51	TCZ-51	C10Q51U		5TCU-Q51S 10% *	
C212	2-6			31B-206-01		829-6				
C213	1000			31J-024	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C214	1000			13L6X102Z	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C215	13		N220 5%	13L8R130J						
C216	4.7		±.25mmf	13L8R4R7C				CNO-547	5TCCB-V47S ±.25mmf*	
C217	47			13M420Q470J-01						
C218	1000			13L6X102Z	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C219	1000			13M420EA102Z-01	EF-1000	MFT-1000				

* Not normally in distributors stock. Available thru distributor on order to manufacturer.
NOTE: Part numbers listed above are "Standard Coil" Part Numbers.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		PART No.	NOTES
	OHMS	WATT		
R201	1000Ω			
R202	4700Ω			
R203	100K			
R204	220K			

ITEM No.	RATING		PART No.	NOTES
	OHMS	WATT		
R205	10K			
R206	1000Ω			
R207	5600Ω			
R208	10K			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PART No.	REPLACEMENT DATA	
K201	Antenna Isolation	470mmf, .3-1meg	13P-198-02	Centralab Sprague	RC-471 AC1-1
K202	Antenna Isolation	470mmf, .3-1meg	13P-198-02	Centralab Sprague	RC-471 AC1-1

NOTE: Part numbers listed above are "Standard Coil" Part Numbers.

COILS (RF-IF)

ITEM No.	USE	PART No.	NOTES
L201	Ant. Trans.	31T-3397	†
L202	IF Trap Coil	34A-748	†
L203	IF Trap Coil	34A-762	
L204	RF Choke	34A-1005	
L205	Fil. Choke	31K-137-027	

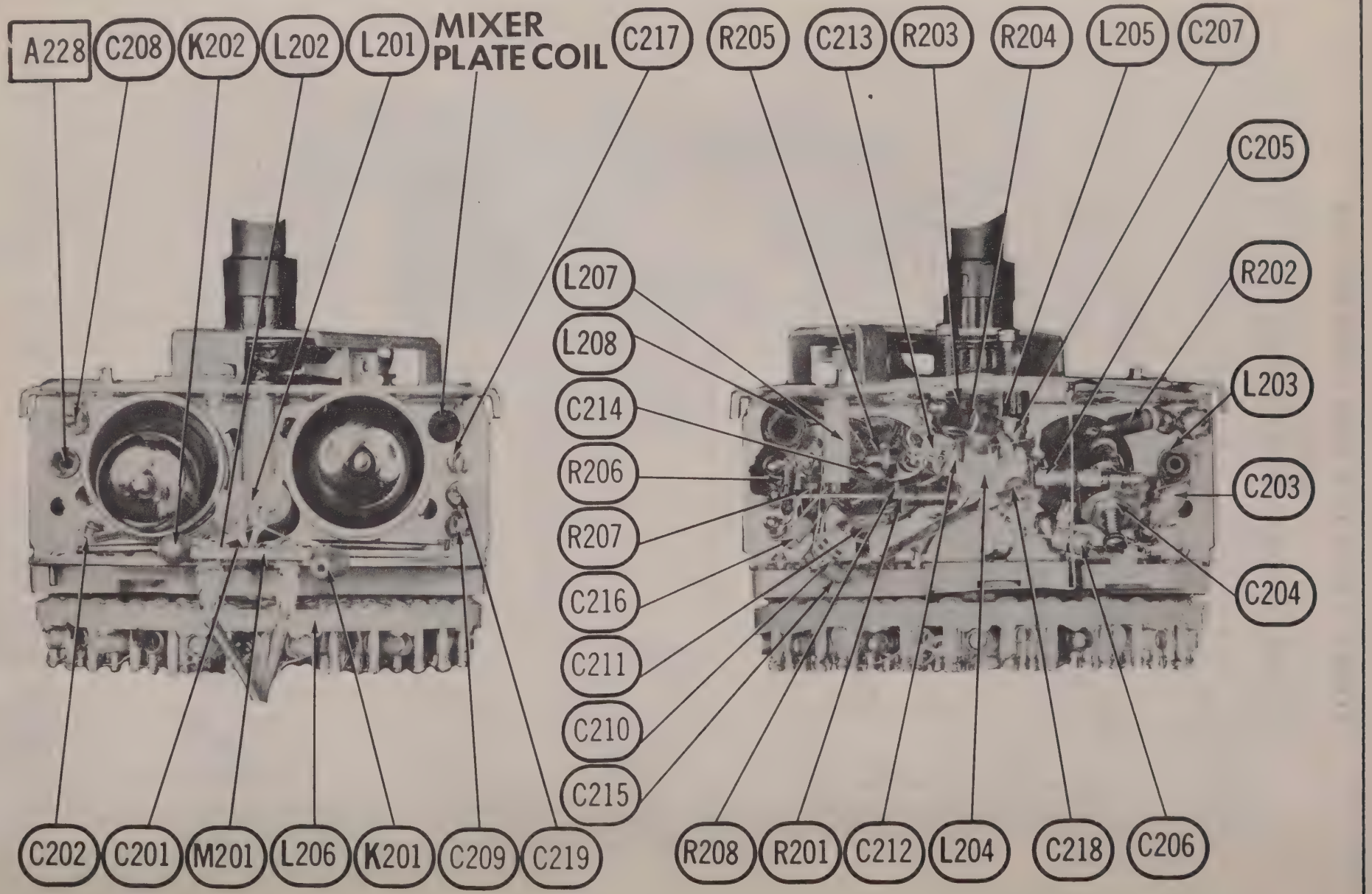
ITEM No.	USE	PART No.	NOTES
L206	Ant, RF, Mixer Grid & Osc. Coils	31T-3361-07	Includes Rotor Disc Assy.
L207	Fine Tuning Coil	34A-787-03	
L208	Mixer Plate Coil	31UA-580-017	

† Part of M201. NOTE: Part numbers listed above are "Standard Coil" Part Numbers.

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M201	Antenna Input Assy	31T-3398-02	Includes C201, L201, L202, K201 and K202
	Retaining Spring	23A-172	
	Locking Spring	23A-131	
	Contact Spring	23A-132-02	
	Detent Spring	23A-145	
	Oscillator Slug	9E-501-01	

NOTE: Part numbers listed above are "Standard Coil" Part Numbers.



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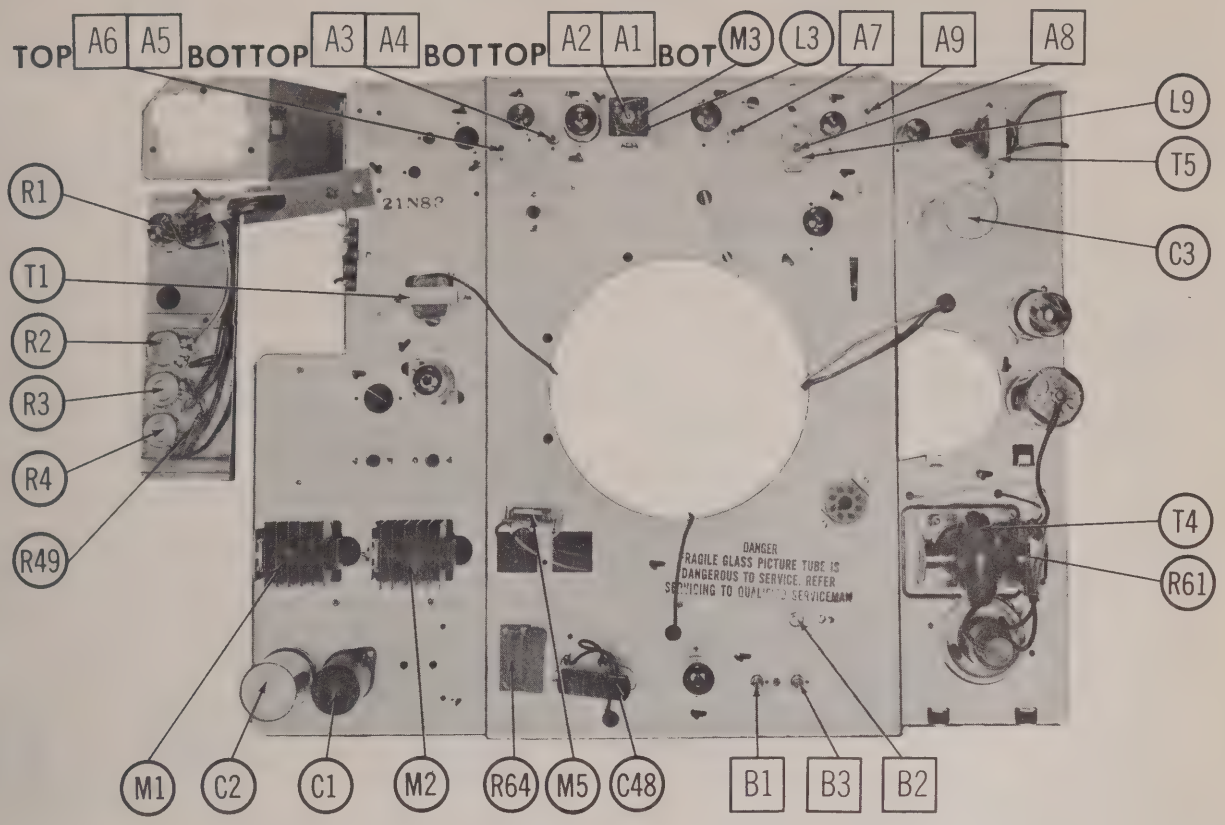
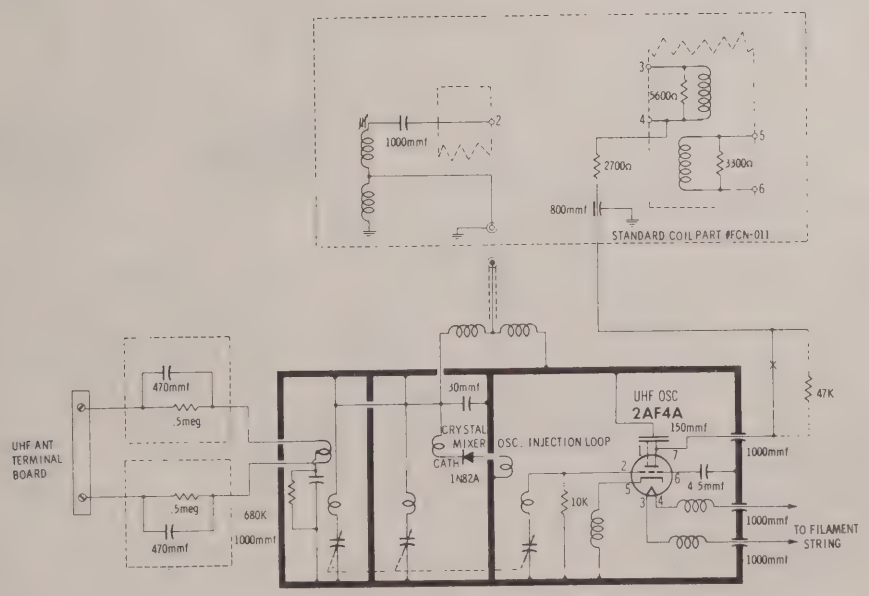


CHASSIS - TOP VIEW



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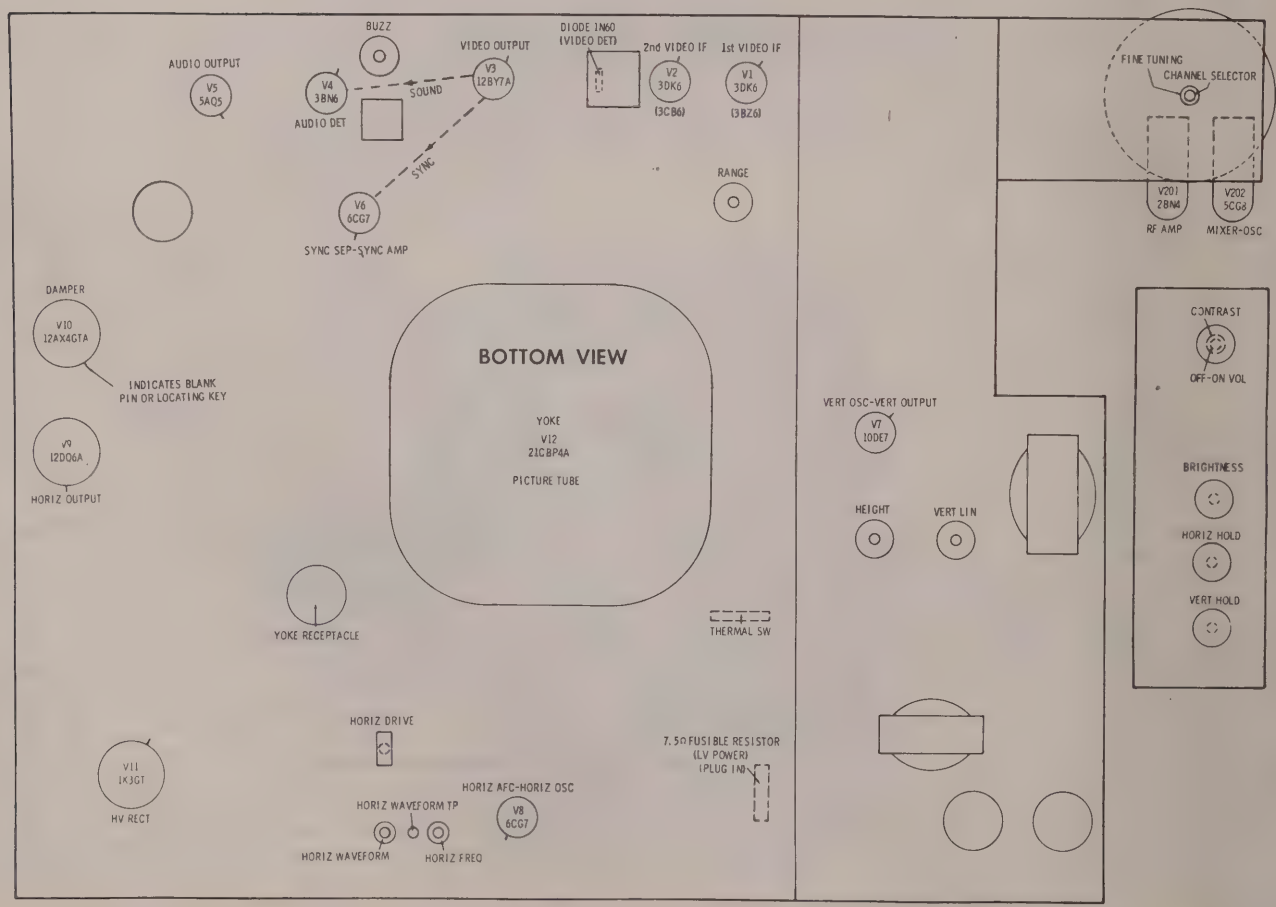
UHF TUNER 25A1159

RESISTANCE MEASUREMENTS

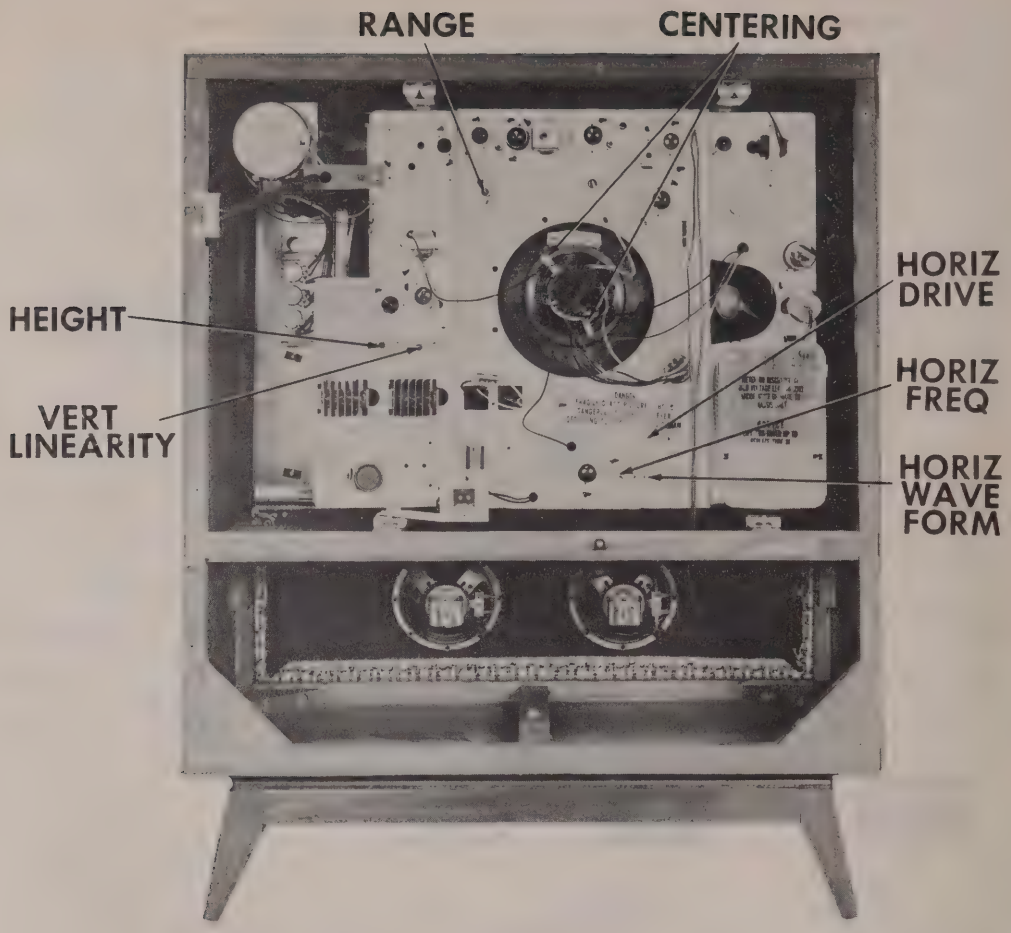
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3DK6	750K	56Ω	9Ω	10Ω	†10K	†10K	0Ω		
V2	3DK6	.1Ω	150Ω	10Ω	11Ω	†2000Ω	†2000Ω	0Ω		
V3	12BY7A	●300Ω	1meg	0Ω	13Ω	13Ω	12Ω	†3600Ω	†1550Ω	0Ω
V4	3BN6	●320Ω	6Ω	9Ω	8.5Ω	†6200Ω	4.8Ω	†330K		
V5	5AQ5	0Ω	330Ω	16Ω	15Ω	†900Ω	†470Ω	0Ω		
V6	6CG7	†1.5meg	2.2meg	0Ω	12Ω	11Ω	†13K	47K	0Ω	0Ω
V7	10DE7	†400Ω	2.2meg	2.2meg	15Ω	13Ω	● †1.6meg	● 900K	200Ω	● 1800Ω
V8	6CG7	†56K	410K	0Ω	8.5Ω	7.5Ω	●†38K	1.5meg	410K	0Ω
V9	12DQ6A	TP	4Ω	NC	†10K	470K	NC	6Ω	100Ω	TOP CAP †10Ω
V10	12AX4GTA	NC	NC	¶1.2meg	NC	†.1Ω	NC	4Ω	2Ω	
V11	1K3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP †310Ω
V12	21CBP4A	6Ω	● 20K	Pin 6 †100K	Pin 10 †10meg	Pin 11 ● 250K	Pin 12 7.5Ω			
V201	2BN4	0Ω	5000Ω	0Ω	.5Ω	†2500Ω	0Ω	5000Ω		
V202	5CG8	10K	†7100Ω	0Ω	2Ω	.5Ω	†2500Ω	†11K	0Ω	320K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 255V SOURCE.
‡ MEASURED FROM PIN 3 OF V10.

NC NO CONNECTION.
TP TIE POINT

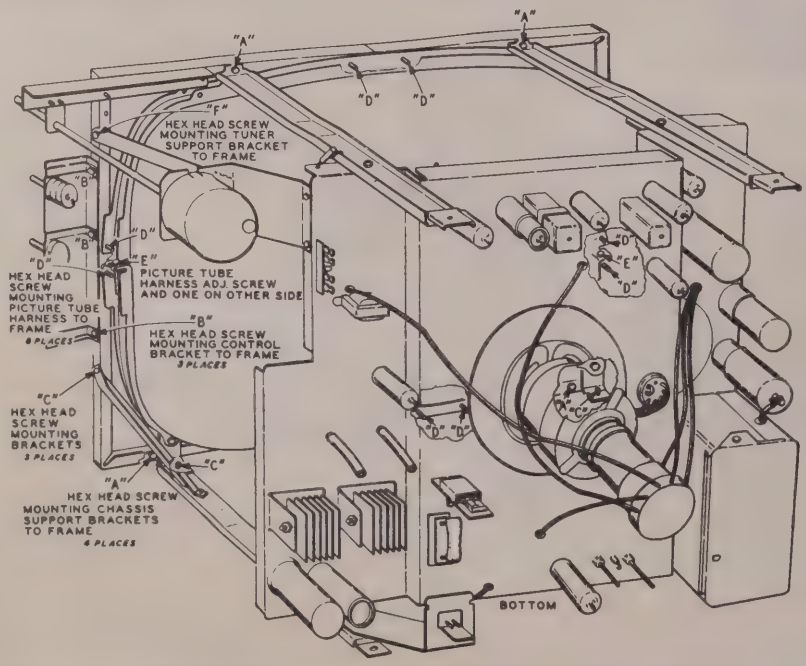


TUBE PLACEMENT CHART



CABINET—REAR VIEW

DISASSEMBLY INSTRUCTIONS



PICTURE TUBE REMOVAL

1. Remove 4 screws marked "A".
2. Remove 3 screws marked "B" and 1 screw marked "F".
3. Remove 3 screws marked "C" and lift chassis from picture tube frame assembly.
4. Loosen 8 screws marked "D" and 2 screws marked "E".
5. Remove old picture tube and install new tube reversing the steps outlined, keeping the following in mind:

   a. There is a mold match line on the picture tube. Assemble the harness to the picture tube, centering the harness over the mold match line on picture tube. Holes are provided in harness to check the centering. Then tighten the screws marked "E" until the picture tube is firmly in place on harness.
   NOTE: If the above is not observed, difficulty may be encountered in replacing the entire assembly in the cabinet.

PHOTOFACT* Folder with CIRCUITRACE*

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

WESTINGHOUSE MODELS H-21K272, 273, 274, 275, 276, H-21KU272, 273, 274, 275, 276 (Ch. V-2375-1, -2)

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

WESTINGHOUSE MODELS H-21K272, 273, 274, 275, 276, H-21KU272, 273, 274, 275, 276 (Ch. V-2375-1, -2)

MODEL H-21K272 (Ch. V-2375-1)

WESTINGHOUSE MODELS H-21K272, 273, 274, 275, 276, H-21KU272, 273, 274, 275, 276 (Ch. V-2375-1, -2)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

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EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

WESTINGHOUSE MODELS H-21K272, 273, 274, 275, 276, H-21KU272, 273, 274, 275, 276 (Ch. V-2375-1, -2)

WESTINGHOUSE MODELS H-21K272, 273, 274, 275, 276, H-21KU272, 273, 274, 275, 276 (Ch. V-2375-1, -2)

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL MODEL H-21K272

1. Remove 3 push-on type knobs from front.
2. Remove 3 metal screws holding escutcheon. Remove the escutcheon.
3. Remove 4 push-on type knobs now visible.
4. Remove 4 metal screws holding front control panel.
5. Remove 7 wood screws holding rear cover. Remove the rear cover.
6. Remove 1 wood screw holding antenna bracket.
7. Remove speaker leads.
8. Remove 4 hex head bolts holding chassis.
9. Remove chassis.

MODEL H-21K272 (Ch. V-2375-1)

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.

TRADE NAME	Westinghouse	MODELS	CHASSIS
		H-21K272, H-21K273, H-21K274, H-21K275, H-21K276	V-2375-1
		H-21KU272, H-21KU273, H-21KU274, H-21KU275, H-21KU276	V-2375-2
MANUFACTURER	Westinghouse Electric Corp., Television & Radio Div., Metuchen, N.J.		
TYPE SET	Television Receiver		
TUBES	VHF-Sixteen, UHF-Seventeen		
POWER SUPPLY	105-120 Volts AC, 60 Cycle	RATING 150 Watts, 1.5 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 3 screws holding the trim strip at the top edge of the safety glass. Tilt glass out and remove.

FUSE DEVICE

A Circuit Breaker is used for low voltage power supply protection, and may be reset by depressing the reset button. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the Channel Selector and Fine Tuning knobs, or by removing the rear cover and locating adjustment hole in the right side of the tuner rear cover, depending upon the tuner used.

AGC

The AGC may be varied by disconnecting a jumper across R34 in the grid circuit of the Keyed AGC tube.

FOCUS

No provision is made to vary the focus on this receiver.

SYNC STABILITY

Sync stability may be varied by means of a Sync Stabilizer control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Multivibrator Trimmer and Horizontal Frequency slug. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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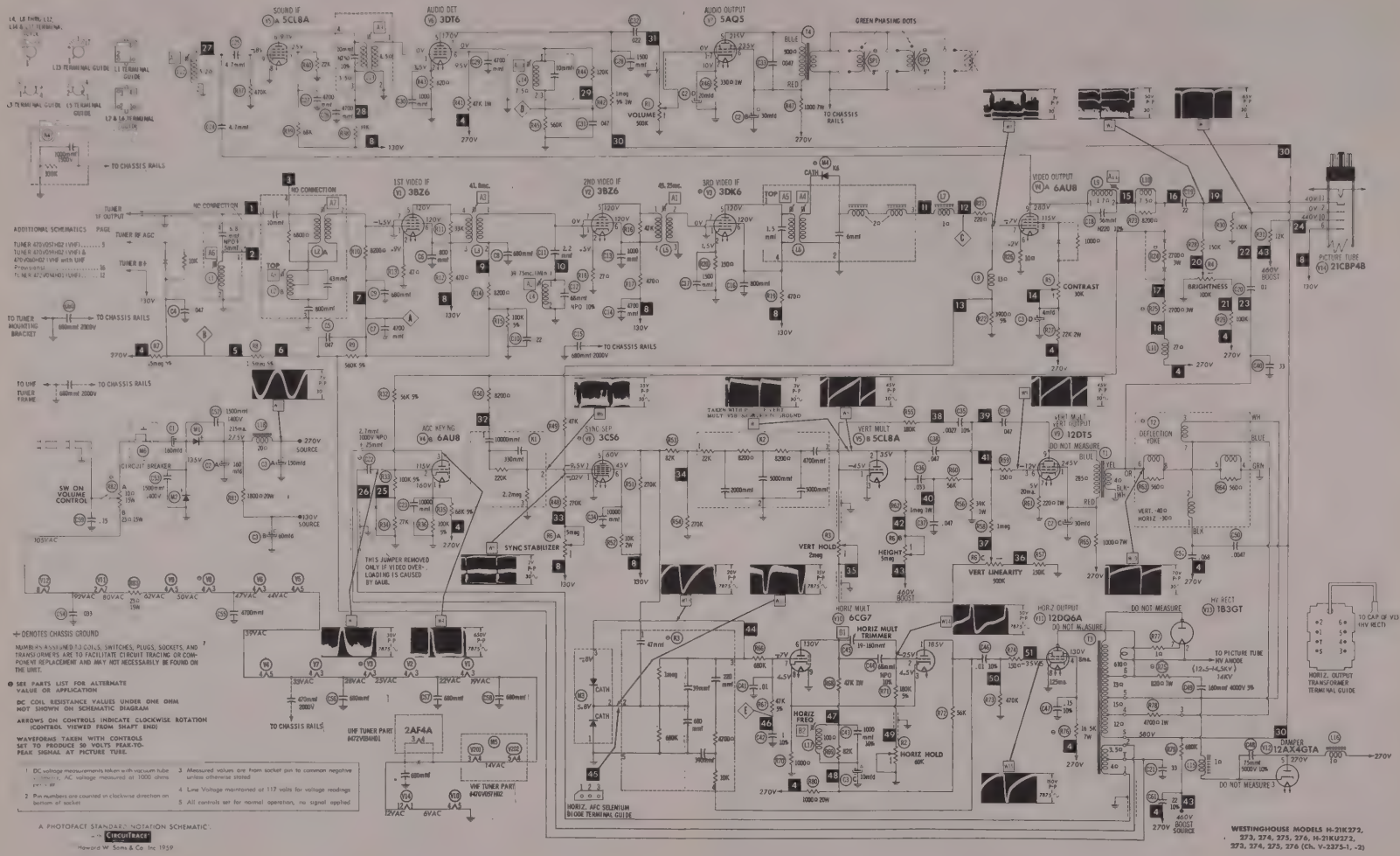
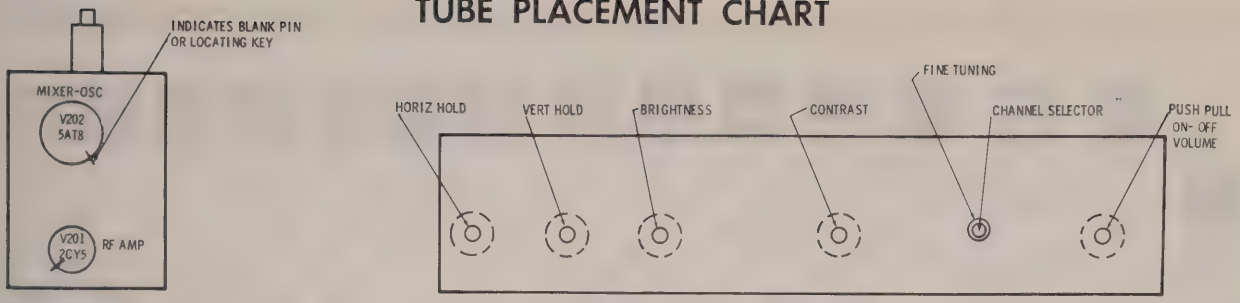
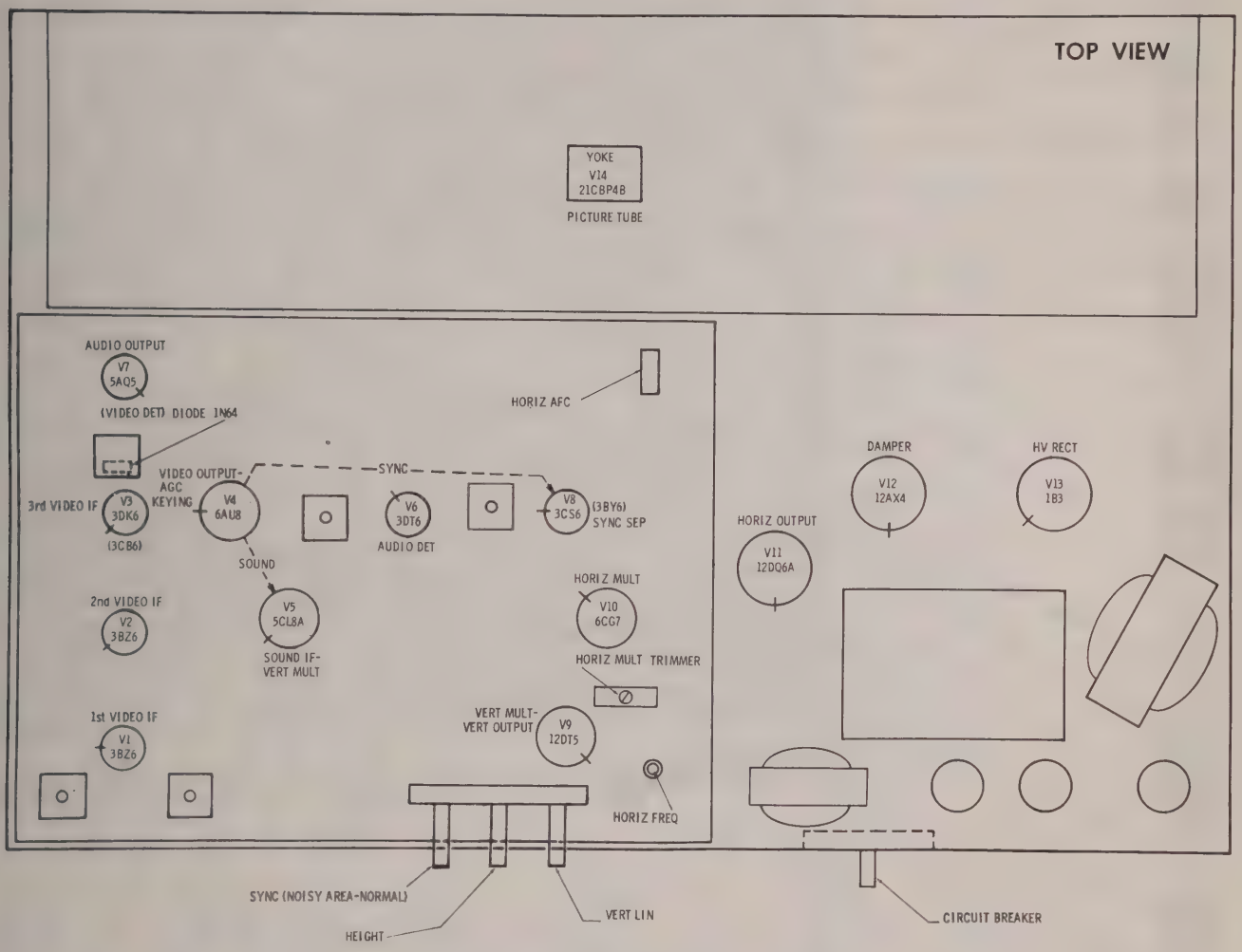
J349

SET 451 FOLDER 2


SOUND IF
AUDIO DET
AUDIO OUTPUT
GREEN PHASING DOTS
VOLUME
TO CHASSIS RAILS
1ST VIDEO IF
2ND VIDEO IF
3RD VIDEO IF
VIDEO OUTPUT
CONTRAST
BRIGHTNESS
PICTURE TUBE
TUNER RF AGC
TUNER IF OUTPUT
NO CONNECTION
TOP
TUNER MOUNTING BRACKET
ADDITIONAL SCHEMATICS PAGE
TUNER 470-VOSH-02 (VHF)
TUNER 470-VOSH-02 UHF) &
470-VOSH-02 VHF with UHF
TUNER 82-VOSH-01 (UHF)
TO UHF TUNER FRAME
CIRCUIT BREAKER
SW ON VOLUME CONTROL
105VAC
SOURCE
ACC KEY AG
SYNC SEP
SYNC STABILIZER
THIS JUMPER REMOVED ONLY IF VIDEO OVERLOADING IS CAUSED BY BAUL
VERT MULT
VERT OUTPUT
DEFLECTION YOKE
VERT HOLD
HEIGHT
VERT LINEARITY
HORIZ MULT
HORIZ MULT TRIMMER
HORIZ OUTPUT
DO NOT MEASURE
HV RECT
TO PICTURE TUBE HV ANODE
TO CAP OF V13 (HV RECT)
HORIZ. OUTPUT TRANSFORMER TERMINAL GUIDE
HORIZ FREQ
HORIZ HOLD
HORIZ. AFC SELENIUM BRIDGE TERMINAL GUIDE
DAMPER
460V BOOST
460V BOOST SOURCE
UHF TUNER PART #07VOSH01
VHF TUNER PART #07VOSH02
2AF4A
DENOTES CHASSIS GROUND
SEE PARTS LIST FOR ALTERMATE VALUE OR APPLICATION
PC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1 DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt.
2 Pin numbers are counted in clockwise direction on bottom of socket
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
CIRCUITRACE
Howard W. Sams & Co. Inc. 1959
WESTINGHOUSE MODELS H-21K272, 273, 274, 275, 276, H-21KU272, 273, 274, 275, 276 (Ch. V-2375-1, -2)

TUBE PLACEMENT CHART





TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

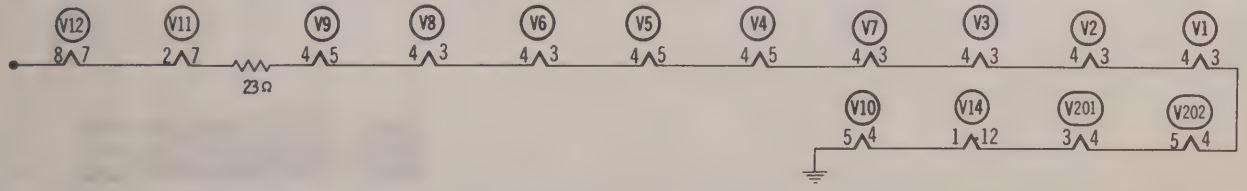
POWER SUPPLY FAILURE
No raster, no sound Circuit Breaker, Rect. (B+)

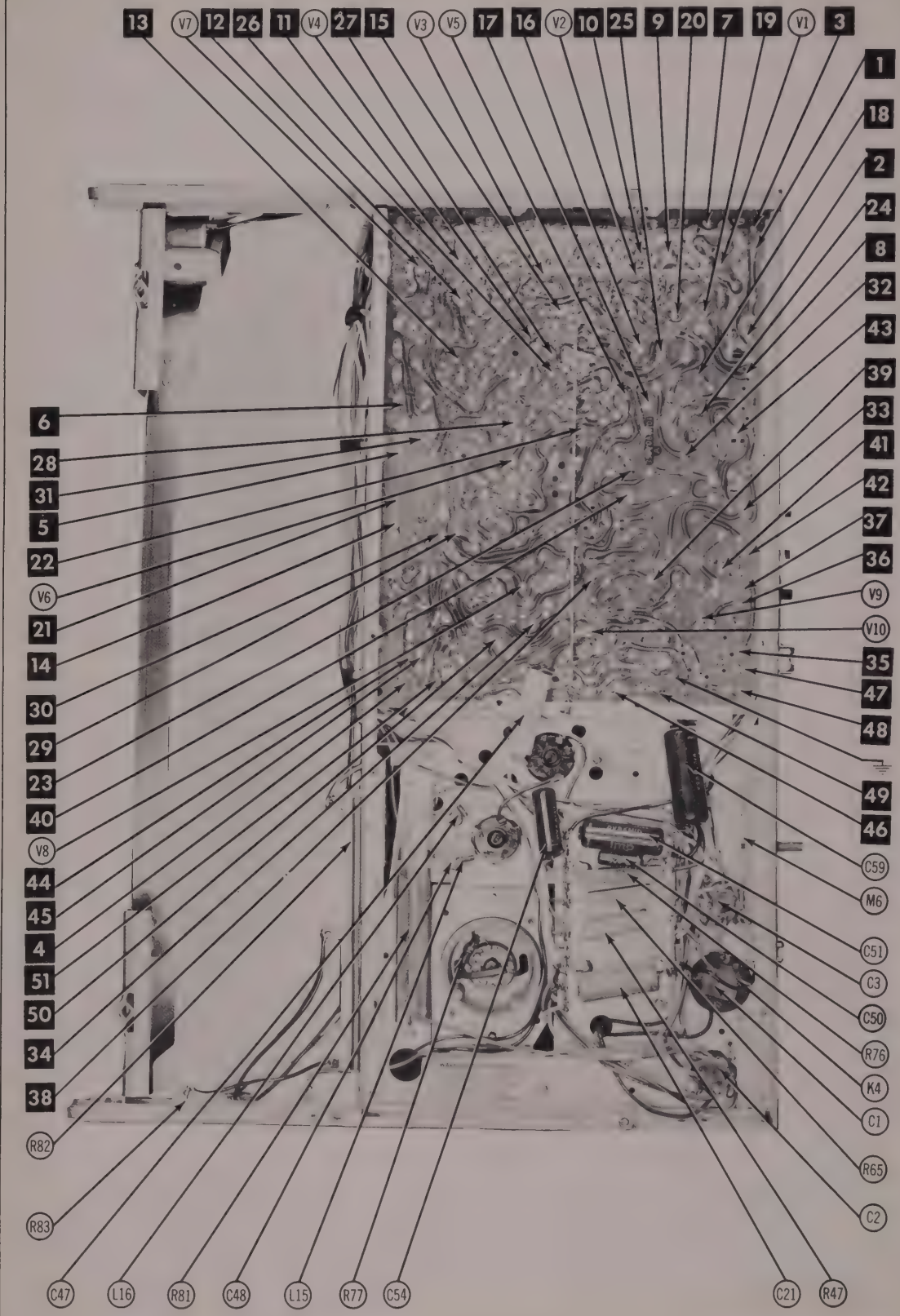
SWEEP FAILURE
No raster, has sound Rect. (Horiz. AFC), V10, V11, V12, V13, V14,
No vertical deflection V5, V9 Rect. (B+)
Poor vert. linearity or foldover V5, V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture Rect. (B+), V10, V11, V12
Vert. off freq. V5, V9
Horiz. off freq. Rect. (Horiz. AFC), V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202
No pic, has sound, has raster V4, V14
Has pic, no sound V5, V6, V7
Overloaded picture V4

SYNC FAILURE
No vert. sync V8
No horiz. sync V8, Rect. (Horiz. AFC)
No vert. or horiz. sync V8

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



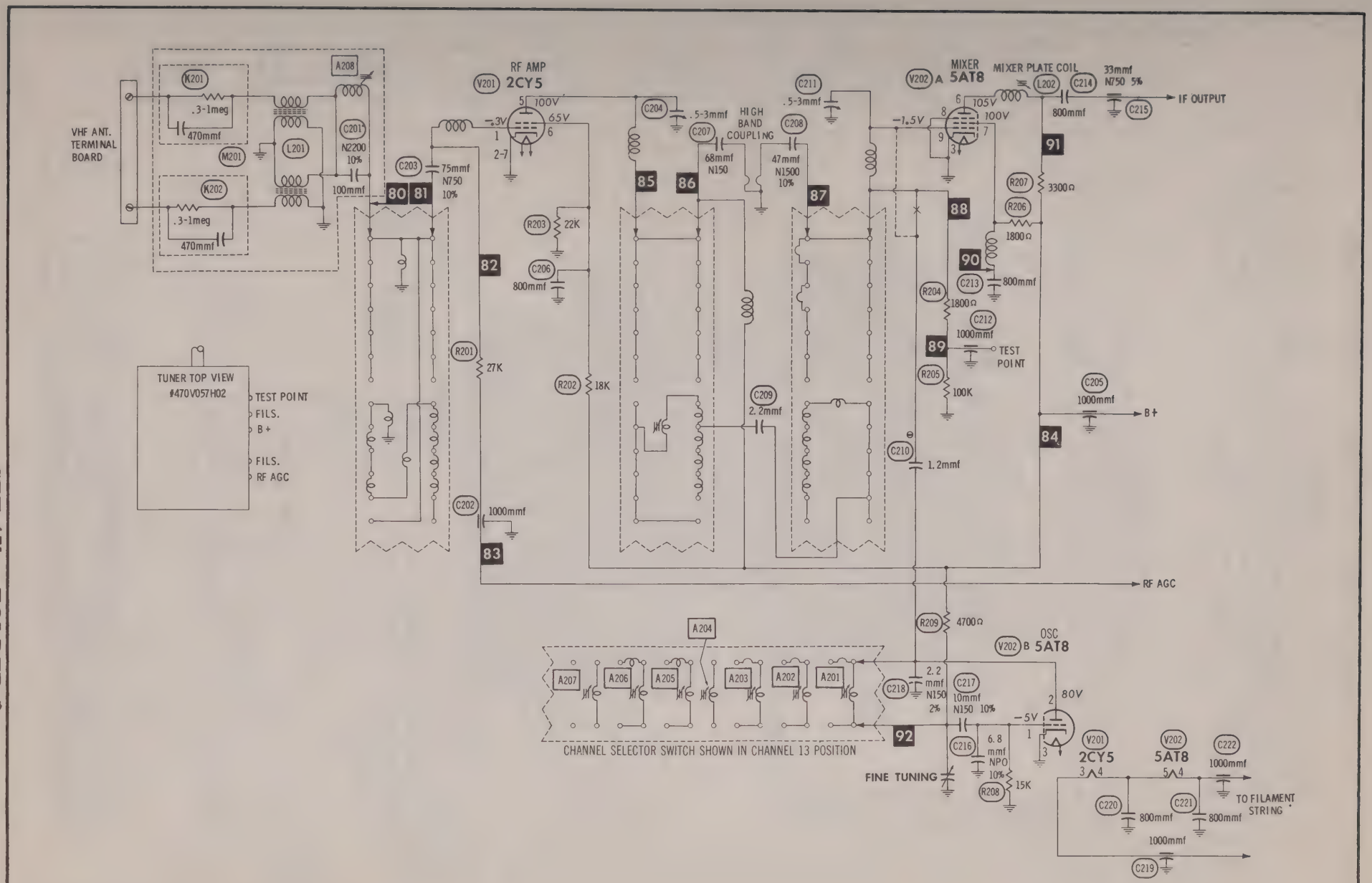


A Howard W. Sams CIRCUITRACE Photo

CHASSIS BOTTOM VIEW

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

WESTINGHOUSE MODELS H-21K272, 273, 274, 275, 276, H-21KU272, 273, 274, 275, 276 (Ch. V-2375-1, -2)



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VHF TUNER 470V057H02

WESTINGHOUSE MODELS H-21K272, 273, 274, 275, 276, H-21KU272, 273, 274, 275, 276 (Ch. V-2375-1, -2)

TUNER PARTS LIST AND DESCRIPTIONS

470V057H02

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	2CY5	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	5AT8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	100		N2200 19%	690V013H10 †						
C202	1000			690V013H14	EF-001	MFT-1000			503C-D1	
C203	75		N1500	V-8747						
C204	.5-3			690V013H56		829-3				
C205	1000			690V013H14	EF-001	MFT-1000			503C-D1	
C206	800			690V013H13	BPD-0008	DD-801	L10T8	B-382	5GA-T8	
C207	68		10%	215V126A80	DI-68	DD-680	L10Q68	CNO-468	5GA-Q68S 10%*	
C208	47		10%	690V004H26	DI-47	DD-470	L10Q47	CNO-447	5GA-Q47S 10% *	
C209	2.2		10%	215V300H09	NPO-SI 2.2	TCZ-2R2	C10V22C	CNO-522	5TCCB-V22S10%*	
C210	1.2		10%						5TCCB-V12S10%*	①
C211	.5-3			690V013H57		829-3				
C212	1000			690V013H14	EF-001	MFT-1000			503C-D1	
C213	800			690V013H13	BPD-0008	DD-801	L10T8	B-382	5GA-T8	
C214	800			690V013H13	BPD-0008	DD-801	L10T8	B-382	5GA-T8	
C215	33		N750 10%	690V013H01				CN7-433	5TCU-Q33S 5%	
C216	6.8		NPO 10%	690V013H21	NPO-DI 6.8	DTZ-6R8	C10V68C	CNO-568	5TCCB-V68S10%*	
C217	10		N150 5%	690V013H09						
C218	2.2		N3300 10%	V-19013-1						
C219	1000			690V013H14	EF-001	MFT-1000			503C-D1	
C220	800			690V013H13	BPD-0008	DD-801	L10T8	B-382	5GA-T8	
C221	800			690V013H13	BPD-0008	DD-801	L10T8	B-382	5GA-T8	
C222	1000			690V913H14	EF-001	MFT-1000			503C-D1	

† Part of M201.
① Some versions may use .68mmf 10% in this application (Part #690V013H53).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Westinghouse PART No.	NOTES
	OHMS	WATT		
R201	27K		RC20AE273K	
R202	18K		RC20AE183K	
R203	22K		RC20AE223K	
R204	1800Ω		RC20AE182K	
R205	100K		250V221A04	

ITEM No.	RATING		Westinghouse PART No.	NOTES
	OHMS	WATT		
R206	1800Ω		RC20AE182K	
R207	3300Ω		RC20AE332K	
R208	15K		RC20AE153J	
R209	4700Ω		250V224A72	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Westinghouse PART No.	REPLACEMENT DATA	
K201	Antenna Isolation	470mmf, .3-1meg	†	Centralab	RC-471
				Sprague	ACl-1
K202	Antenna Isolation	470mmf, .3-1meg	†	Centralab	RC-471
				Sprague	ACl-1

† Part of M201.

COILS (RF-IF)

ITEM No.	USE	Westinghouse PART No.	NOTES
L201A	Ant. Trans.	†	† Part of M201.
B	IF Trap Coil	†	† Part of M201.

ITEM No.	USE	Westinghouse PART No.	NOTES
L202	Mixer Plate	690V013H58	

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M201	Antenna Input	690V013H59	Inclues rear plate, C201, L201, K201, K202

TUNER 470V057H02 - TOP VIEW

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 543, 544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 4 volt bias supply to point (A). Positive to chassis.
Connect the negative lead of a 2.5 volt bias supply to point (B). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide a usable indication on VTVM.
Use only enough sweep generator output to provide a usable pattern on scope.
Detune A5, A7 and A8.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001mfd	High side to pin 1 (grid) of 1st Video IF. Low side to chassis.	Not used	45.25MC	Any non-interfering channel	USE VTVM. DC probe thru 47K to point (C). Common to chassis. (Across Video Det. load)	A1	Adjust for maximum negative voltage.
2.	"	"	"	39.75MC	"	"	A2	Adjust for MINIMUM deflection.
3.	"	"	"	41.8MC	"	"	A3	Adjust for maximum deflection.
4.	"	"	44.0MC	44.0MC	"	USE SCOPE. Vert. Amp. thru 47K to point (C). Low side to chassis. (Across Video Det. load)	A4	Adjust to peak at 44.0MC.
5.	"	"	"	44.75MC	"	"	A5	Adjust until high frequency peak falls at 44.75MC. Retouch A4 to obtain a symmetrical double peak response similar to Fig. 1.
6.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	41.25MC	"	"	A6	Detune by turning several turns clockwise. Then adjust to place marker in trap notch as in Fig. 2.
7.	"	"	"	44.0MC 45.75MC	"	"	Mixer Plate Coil & A7	Adjust Mixer Plate Coil for maximum amplitude at 44.0MC. Adjust A7 to obtain a symmetrical response which rocks about 44.0MC. The 45.75MC marker should fall at 50% on curve as in Fig. 2.
8.	"	"	"	47.25MC	"	"	A8	Adjust to place 47.25MC marker in trap notch as in Fig. 2.

SOUND IF ALIGNMENT

Tune in a strong TV signal, preferably with test pattern and tone signal.
Adjust the Fine Tuning for best reception. Set the Volume control so that the sound is audible. Adjust A9 for maximum sound output.
Connect a short clip lead from pin 1 (grid) of the 3rd Video IF to chassis.
Connect the DC probe of a VTVM to point (D). Common to chassis. Adjust A10 for maximum negative voltage on the VTVM. Remove the clip lead from the circuit.
Disconnect the antenna lead and place near the antenna terminals so that the signal coupled to the receiver produces a weak picture. A hiss will be noticed in the sound. Adjust A11 and A12 for maximum negative voltage on the VTVM. If the VTVM indicates a broad response while adjusting A12, move the antenna lead farther from the antenna terminals.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 15

FIG.1

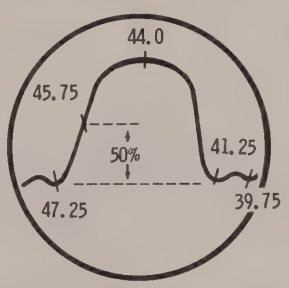
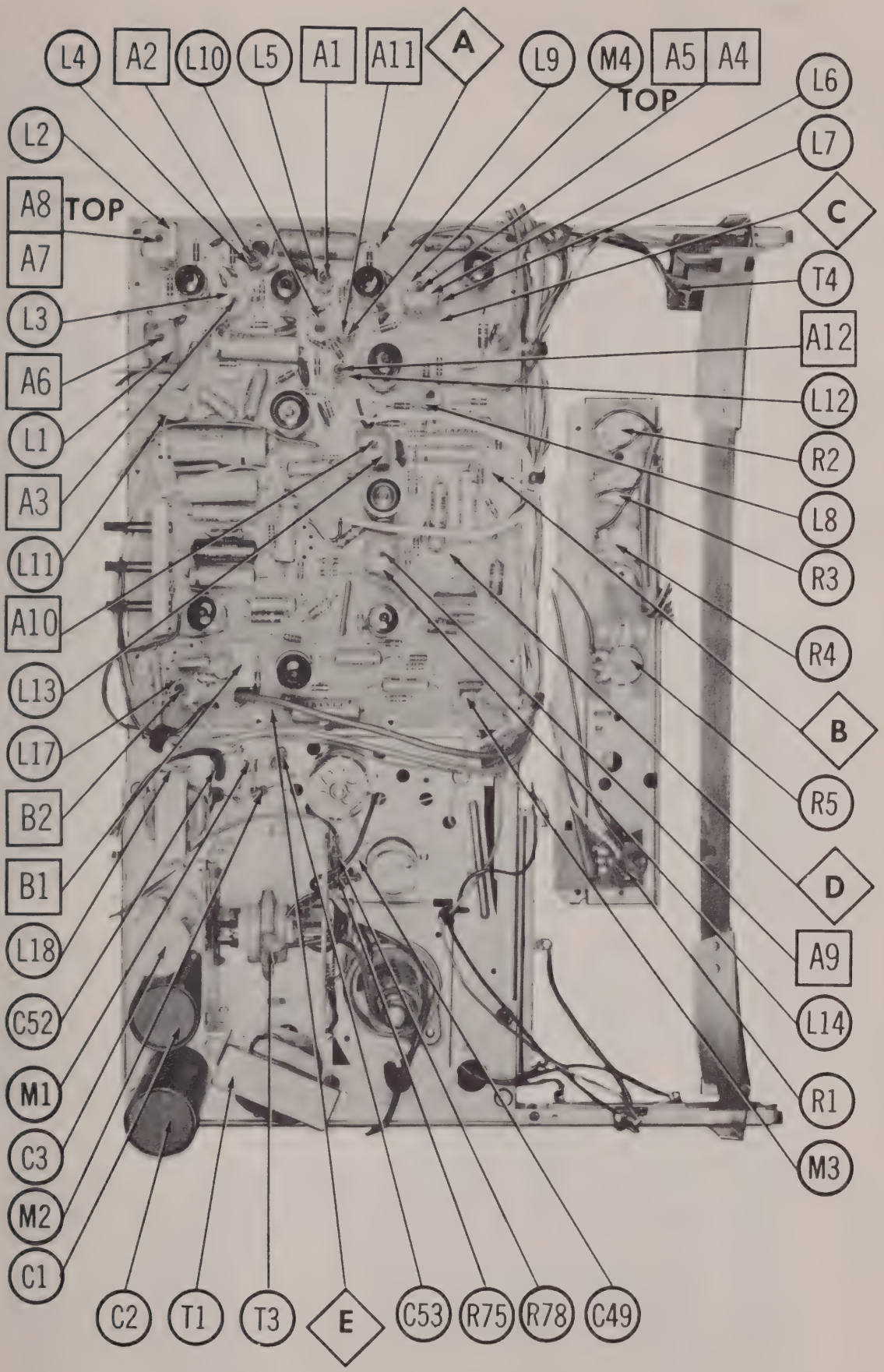


FIG.2



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp.	3BJ6	
V2	2nd Video IF Amp.	3BJ6	
V3	3rd Video IF Amp.	3DK6	3CB6 *
V4	Video Output-AGC Keying	6AL8	
V5	Sound IF Amp -Vert. Mult	3CL8A	
V6	Vert. Osc.	3DT6	
V7	Audio Output	3AQ5	

ITEM No	USE	TYPE	NOTES
V8	Sync Sep	3CS6	3BY6 *
V9	Vert. Mult.-Vert. Output	12DT5	
V10	Horiz. Mult.	6CG7	
V11	Horiz. Output	12DQ6A	
V12	Damper	12AX4GTA	
V13	HV Rect.	1B3GT	

* Alternate.

PICTURE TUBE

ITEM No	REPLACEMENT DATA				
	Westinghouse PART No	GENERAL ELECTRIC PART No	RCA PART No	SYLVANIA PART No	NOTES
V14	12CBP4B		21CBP4-A ①	21CBP4/ 21CBP4A ②	① Aluminized ② "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	WESTINGHOUSE PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	160	200	21BV021H01	AFH31-37-25	XA0396	FP237.5 *	T3MD-33 *	TVL-3473 TVLS-6805.2*	
C2A	▲80	350	21BV035H33						
B	▲30	300							
E	▲30	300							
D	20	50							
C3A	▲150	350	21BV026H15	AFH4-56-95	XD0695	FP419.05		TVL-4605.5	
B	▲60	300							
C	▲20	300							
D	4	300							

* Connect positive terminals together.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	.047	200		21OV014A73	P388N-047	DF-503	CUB2847	GEM-4147	2TM-S47	
C5	.047	200		21OV014A73	P388N-047	DF-503	CUB2847	GEM-4147	2TM-S47	
C9	800			21SV300H18	BPD-0068	DD-801	L20T8	B-382	5GA-T8	
C7	4700			21SV100A72	BPD-0047	DD-472	BYAUDD47M	B-347	5HK-D47	
C8	680			R2CC6IZ5Z68JP	BPD-00068	DD-681	BYAI0T68	B-368	5GA-T68	
C9	680			R2CC6IZ5Z68JP	BPD-00068	DD-681	BYAI0T68	B-368	5GA-T68	
C10	.22	300		21OV042A34	P288N-22		CUB4P22	GEM-4022	4TM-P22	
C11	2.2			V-8963-2296	NPO-SI 2.2	TCZ-2R2	C10V22C	CNO-522	5TCCB-V22	
C12	68			21SV104A80	NPO-DI 68	DTZ-68	C10Q68C	CNO-468	5TCC-Q68	
C13	1000			21SV300H49	BPD-001	DD-103	BYAI0DLM	B-310	5HK-D1	
C14	4700			21SV104A72	BPD-0047	DD-472	BYAI0D47M	B-347	5HK-D47	
C15	680	2000		21SV300H19	HVD-30-680	DD30-681	BYB20T68	2HV-368		
C16	800			21SV300H18	BPD-0008	DD-801	L20T8	B-382	5GA-T8	
C17	1500			21SV300H31	BPD-0015	DD-152	BYAI0D15	B-315	5HK-D15	
C18	56		N220 10%	21SV015A80						
C19	.22	400		21OV052A34	P488N-22		CUB4P22	GEM-4022	4TM-P22	
C20	.01	400		21OV051A03	P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C21	.22	300		21OV042A34	P288N-33		PM4P33	GEM-2033	2WF-P33	
C22	2.7	1000	NPO ± .25mmf	①					5TCCB-V27S ± .25mmf*	
C23	10000			21SV10IA03	BPD-01	DD-103	BYAI0S1	B-310	5HK-S1	
C24	6.7			V-8963-4796	NPO-SI 4.7	TCZ-4R7	C10V47C	ZT-5547	5GA-V5	
C25	4.7			V-8963-4796	NPO-SI 4.7	TCZ-4R7	C10V47C	ZT-5547	5GA-V5	
C26	4700			21SV104A72	BPD-0047	DD-472	BYAI0D47M	B-347	5HK-D47	
C27	4700			21SV104A72	BPD-0047	DD-472	BYAI0D47M	B-347	5HK-D47	
C28	1500			21SV300E31	BPD-0015	DD-152	BYAI0D15	B-315	5HK-D15	
C29	4700			21SV104A72	BPD-0047	DD-472	BYAI0D47M	B-347	5HK-D47	
C30	1000			21SV10IA02	BPD-001	DD-102	BYAI0D1M	B-210	5HK-D1	
C31	.047	200		21OV014A73	P388N-047	DF-503	CUB2847	GEM-4147	2TM-S47	
C33	.047	400		21OV052A33	P488N-022		CUB4S22	GEM-4122	4TM-S22	
C32	.0047	600		21OV064A72	P688N-0047	D6-472	CUB6D47	GEM-6247	6TM-D47	
C34	10000			21SV10IA03	BPD-01	DD-103	BYAI0S1	B-310	5HK-S1	
C35	.0027	600	10%	21SV10IE3			PM6D3	GEM-1823	6TM-D3	
C36	.033	600		21OV063A33	P688N-033	DF-303	CUB6S33	GEM-6133	6TM-S33	
C37	.047	400		21OV014A73	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C38	.047	400		21OV054A73	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C39	.047	600		21OV10E02	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C40	.33	300		21OV043A34	P288N-33		CUB2P33	GEM-2033	2WF-P33	
C41	.01	400		21OV051A03	P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C42	.1	200	10%	21OV04LA04	V84C1P1		PM2P1	GTM-201	2TM-P1	
C43	1000		10%	21OV07LA02	1469-001		IR5D1	MCB255	M8-21	
C44	68		NPO 10%	21SV10EA80	NPO-DI 68	DTZ-68	C10Q68C	CNO-468	5TCC-Q68S 10% *	
C45	19-180			21TV50LI01						
C46	.01	400	10%	21OV05IA03	V84C4S1		PM4S1	GTM-411	4TM-S1	
C47	.18	400	10%	21OV20LA54	V84C4P15		PM4P15	GTM-4015	4TM-S5	
C48	75	5000	10%	21SV300H17					50GA-Q75S 10% *	
C49	180	4000	5%	21SV300H27					50GA-T18S 5% *	
C50	.0047	600		21OV2I6A72	P688N-0047	D6-472	CUB6D47	GEM-6247	6TM-D47	
C51	.068	600		21OV2I6A83	P668N-068	DD16-702	CUB6S68	GEM-6168	6TM-S68	
C52	1500	1400		21SV30IA53	HVD-15-1500	DD30-153	HVC15D15	2HV-215	20GA-D15S *	
C53	1500	1400		21SV30IA52	HVD-15-1500	DD30-152	HVC15D15	2HV-215	20GA-D15S *	
C54	.033	600		21OV2I3A33	P688N-033	DF-303	CUB6S33	GEM-6133	6TM-S33	
C55	4700			21SV104A72	BPD-0047	DD-472	BYAI0D47M	B-347	5HK-D47	
C56	680			R2CC6IZ5Z68JP	BPD-00068	DD-681	BYAI0T68	B-368	5GA-T68	
C57	680			R2CC6IZ5Z68JP	BPD-00068	DD-681	BYAI0T68	B-368	5GA-T68	
C58	680			R2CC6IZ5Z68JP	BPD-00068	DD-681	BYAI0T68	B-368	5GA-T68	
C59	.15	600		21OV06IA54	P688N-15		CUB6P15	GEM-6015	6TM-P15	
C60	680	2000		21SV300H19	HVD-30-680	DD30-681	HVB20T68	2HV-368		
C61	.22	600	10%	21OV062A34	V84C6P22		PM6P22	GTM-6022	6TM-P22	

Note 1. Some versions may use 2.7mmf N750 5% in this application (Part #21SV300H52).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST ANCE	WATTS	Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	1	27OV051H01		RTV-505		PP55A	Volume
B	Switch				Not Req.		Not Req.	Push-Pull Off/On
R2A	60K	1	27OV023H01	B-35	A47-75K-B	QU-135	TA35L	Horiz. Hold
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
R3A	2meg	1	27OV060H01	B-75	A47-2meg-B	QU-139	TA-35L	Vert. Hold
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
R4A	100K	1	27OV023H02	B-40	A47-100K-B	QU-128	TA35L	Brightness
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
R5A	30K	½	27OV065H01	B-30	A47-30K-B	QU-127	RU34L, SL-3500	Contrast
B	Shaft			Not Req.	RS-3	Not Req.		
R6A	5meg	1	27OV019H08					Sync Stabilizer
B	5meg	1						Height
C	500K	1						Vert. Linearity

RESISTORS

All wattages 1/2 watt, or less, unless otherwise stated.

ITEM No.	RATING		Westinghouse PART No.	NOTES
	OHMS	WATT		
R7	15meg 5%		250V21A56	
R8	1.5meg 5%		250V21A55	
R9	560K 5%		RC30AE564J	
R10	8200Ω		V-9927-21	
R11	33K		250V03H22	
R12	470Ω		250V234A71	
R13	47Ω		RC20AE470K	
R14	8200Ω		V-9927-21	
R15	100K 5%		250V21A04	
R16	15K		250V03H23	
R17	470Ω		250V234A71	
R18	27Ω		RC20AE270K	
R19	470Ω		250V234A71	
R20	150Ω		RC20AE151K	
R21	220Ω		RC20AE221K	
R22	3300Ω 5%		250V23A32	
R23	8200Ω		RC20AE822K	
R24	2700Ω	3	25IV014H11	Note 1
R25	2700Ω	3	25IV014H11	Note 1
R26	10Ω		RC20AE100K	
R27	22K	2	RC42AE223K	
R28	150K		RC20AE154K	
R29	100K		250V21A04	
R30	150K		RC20AE154K	
R31	12K		RC20AE123K	
R32	56K 5%		250V21A63	
R33	100K 5%		250V21A04	
R34	27K		RC20AE273K	
R35	68K 5%		250V21A63	
R36	100K 5%		250V21A04	
R37	470K		250V21A74	
R38	39K		RC20AE393K	
R39	68K		RC20AE683K	
R40	22K		RC20AE223K	
R41	47K	1	RC30AE473K	
R42	1meg 5%	1	250V21A05	
R43	820Ω		250V228A21	
R44	120K		RC20AE124K	
R45	560K		RC20AE564K	

ITEM No.	RATING		Westinghouse PART No.	NOTES
	OHMS	WATT		
R46	330Ω	1	RC30AE331K	
R47	1000Ω	7	251V020H54	
R48	270K		RC20AE274K	
R49	47K		RC20AE473K	
R50	6300Ω		RC20AE632K	
R51	270K		RC20AE274K	
R52	2.2K	2	RC42AE222K	
R53	82K		RC20AE823K	
R54	270K		RC20AE274K	
R55	180K		RC20AE184K	
R56	39K	1	RC30AE393K	
R57	150K		RC20AE154K	
R58	1meg		250V21A05	
R59	150Ω		RC20AE151K	
R60	56K		RC20AE563K	
R61	220Ω	1	RC30AE221K	
R62	1meg	1	250V32A05	
R63	560Ω		RC20AE561K	
R64	560Ω		RC20AE561K	
R65	1000Ω	7	251V020H54	
R66	680K		250V228A84	
R67	47K 5%		250V21A73	
R68	47K	1	RC30AE473K	
R69	82K		RC20AE823K	
R70	1000Ω		250V32A02	
R71	180K 5%		250V21A84	
R72	56K		RC20AE563K	
R73	470K		250V21A74	
R74	150Ω		RC20AE151K	
R75	820Ω	1	RC30AE821K	Note 2
R76	16.5K	7	251V020H22	Note 3
R77	2Ω		251V001A09	
R78	4700Ω	1	RC30AE472K	
R79	680K		250V228A84	
R80	1000Ω	1	259V003H25	
R81	1800Ω	20	251V17D14	
R82A	10Ω	15	251V027H02	Note 4
B	22Ω	15		
R83	22Ω	15	251V017H15	

Note 1. Some versions may use a single 5400Ω 7W to replace R24 and R25 (Part #251V014H15).
Note 2. Some versions may use 3200Ω 1W in this application.
Note 3. Some versions may use 18K 7W in this application (Part #251V020H20).
Note 4. Some versions may use 10Ω 10W & 22Ω 15W in this application (Part #251V027H01).

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	Westinghouse PART No	REPLACEMENT DATA
K1	Sync Coupling	330mmf, 10000mmf, 220K, 2.2meg	21SV030H02	
K2	Vert. Integrator	2000mmf, 4700mmf, 5000mmf, 5000mmf, 8200Ω, 8200Ω, 22K	21SV029H01	
K3	Horiz. AFC	33mmf, 47mmf, 220mmf, 390mmf, 680mmf, 4700Ω, 10K, 850K, 1meg	21SV028H02 ①	
K4	Input Chassis Isolation	1000mmf ② 1500V, 330K	21SV004H03	Sprague ACI-8

① Early production used individual components in this application.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		Westinghouse PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	41.25MC Trap	23OV069H01						
L2A	1st Video IF Trans.	23SV021H02						
B	47.25MC Trap							
L3	2nd Video IF Trans.	23SV-D47						
L4	39.75MC Trap	230V030H01						
L5	3rd Video IF Trans.	235V020H03						
L6	4th Video IF Trans.	235V005H03						
L7	RF Choke	230V019H10	19-1006	19-1006		4624		Includes M4 14uh
L8	Shunt Peaking Coil	230V034H01	19-3330	19-3330	TV-190	6132	VP-7	350uh
L9	4.5MC Trap	230V030H03						
L10	Series Peaking Coil	230V034H03	19-3125	19-3125	TV-196 TV-207	6130 6186		140uh 900uh
L11	Shunt Peaking Coil	230V034H10						
L12	1st Sound IF	230V039H07						
L13	2nd Sound IF	235V046H01						
L14	Quadrature Coil	230V031H01						
L15	RF Choke	230V019H10	19-1006	19-1006		4624		14uh
L16	RF Choke	230V019H10	19-1006	19-1006		4624		14uh

TRANSFORMER (HORIZ. OSC.)

ITEM No	DC RES.		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Westinghouse PART No	Halldorson PART No	Merit PART No	Miller PART No	Ram PART No	Thordarson PART No		
L17	100Ω		230V032H01							Horiz. Osc

FILTER CHOKE

ITEM No	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES	INDUCTANCE IO CURRENT 1000 ~'s	Westinghouse PART No	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
L18	.215A	20Ω	5 Hy	430V084H01						

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA							
		Westinghouse PART No	Halldorson PART No	Merit PART No	Ram PART No	Rogers PART No	Stancor PART No	Thordarson PART No	Triad PART No
T1	Vert. Output	430V039H01	26872	A-2823	V307	VO33	A-8144	26872	A-108X
T2	Yoke-Horiz. (20MH)	490V001H05	Y-16	MDF-92	Y90F19/43	PCM2045	DY-16A	Y-16	Y-41 &
	(90°)-Vert. (39MH)	1	2 3	2 3	2 3	2 3	2 3	2 3	NW-1 2
	Alt. Yoke	490V001H04	Y-16	MDF-92	Y90F19/43	PCM2045	DY-18A	Y-16	Y-41 &
		1	2 3	2 3	2 3	2 3	2 3	2 3	NW-1 2
	Rear Cover & Centering Device	V-15998-2							YC-1 & CL-1
	Yoke Clamp	788V014H04							
T3	Horiz. Output	493V003H07							

① Does not include yoke leads, R63 or R64.
② Use original yoke damping network, if necessary.
③ Use original rear cover, centering device and yoke clamp. Connect same as original.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T4	7200Ω	3-4Ω	430V087H01	26848	A-3020	AU-804	A-3849	36848	S-92	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP	Westinghouse PART No.	QUAM PART No.	
SP1	8"	PM	8-8Ω	570V043H02 ①	BA2IZ6.4	① Used in some versions of Model H-21K272.
SP2	5"	PM	8-8Ω	570V010H04 ①	BAI5TZ6.8	② Used in Models H-21K272, 273
	8"	PM		570V009H01 ②		③ Used in Models H-21K274, 275, 276, H-21KU272, 273, 274, 275, 276
	8"	PM		570V009H02 ③		④ Used in Models H-21K273, 274, H-21KU272, 273, 274, 275, 276
	5"	PM		570V010H01 ④		⑤ Used in Models H-21K275, 276, H-21KU275, 276
	5"	PM		570V010H02 ⑤		

RECTIFIERS

ITEM No	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	Westinghouse PART No.	FEDERAL PART No	INTERNATIONAL PART No	SARKES TARZIAN PART No	SYLVANIA PART No	
M1	215A	295V006H03 ①	HF504 1	SD94A 1	M500 1		1 Silicon Type.
M2	215A	295V006H03 ①	HF504 ①	SD94A 1	M500 1		2 Selenium Type.
M3		288V004H01 ②	1T1 2 3	IG615 2			3 Two used.

CRYSTAL DIODES

ITEM No	ORIG. TYPE	REPLACEMENT DATA			NOTES
		Westinghouse PART No.	CBS PART No.	SYLVANIA PART No	
M4	K6 *	V-10916-3	1N60	1N295	Video Det. (Pigtail)

* Some versions may use 1N64 or 1N295 in this application.

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M5	Tuner	470V057H02	VHF
	Tuner	470V059H02	VHF
	Tuner	470V060H02	VHF with UHF provisions
	Tuner	472V034H01	UHF
M6	Circuit Breaker	753V006H01	

WESTINGHOUSE MODELS H-21K272, 273, 274, 275, 276, H-21KU272, 273, 274, 275, 276 (Ch. V-2373-1, -2)

FOLDER 2

PARTS LIST AND DESCRIPTIONS (Continued)

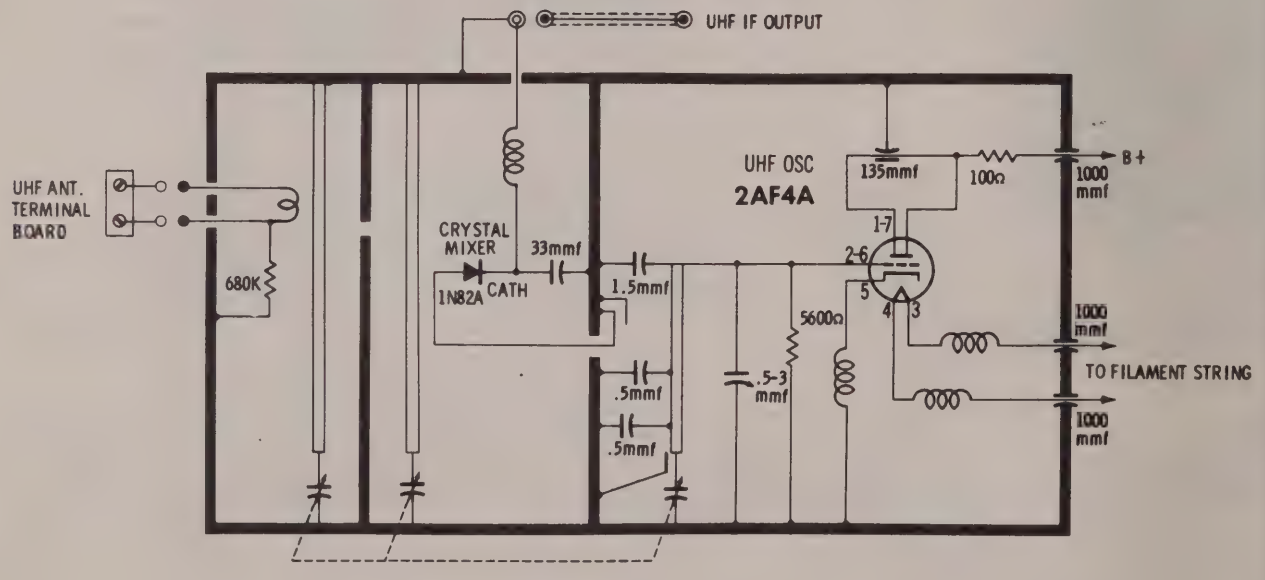
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	630V009H02	
Mask	610V007H04	
Knob	550V100H01	VHF Channel Selector
Knob	550V050H01	UHF Channel Selector, Models H-21KU272, 273, 274, 275, 276
Dial	550V029H07	UHF
Knob	550V078H01	VHF Fine Tuning
Knob	550V101H01	Off-On, Volume, Contrast
Knob	550V044H01	Horiz., Vert., Brightness
Cabinet	516V073H01	Model H-21K272
Cabinet	516V073H02	Model H-12K273
Cabinet	516V073H05	Model H-21K274
Cabinet	516V066H01	Model H-21K275
Cabinet	516V066H02	Model H-21K276
Cabinet	516V073H03	Model H-21KU272
Cabinet	516V073H04	Model H-21KU273
Cabinet	516V073H05	Model H-21KU274
Cabinet	516V066H04	Model H-21KU275
Cabinet	516V066H05	Model H-21KU276
Leg	518V001H21	Model H-21K272
Leg	518V001H22	Model H-21K273
Leg	518V001H23	Models H-21K274, H-21KU274
Leg	690V012H57	Model H-21KU275
Leg	690V012H58	Model H-21KU276
Leg	690V001H21	Model H-21KU272
Leg	690V001H22	Model H-21KU273
Base	690V012H62	Swivel (Less Legs) Models H-21K274, H-21KU274
Base	690V012H56	Swivel (Less Legs) Models H-21K275, H-21KU275
Base	690V012H58	Swivel (Less Legs) Models H-21K276, H-21KU276
Base	690V012H60	Swivel (Less Legs) Model H-21KU272
Base	690V012H61	Swivel (Less Legs) Model H-21KU273

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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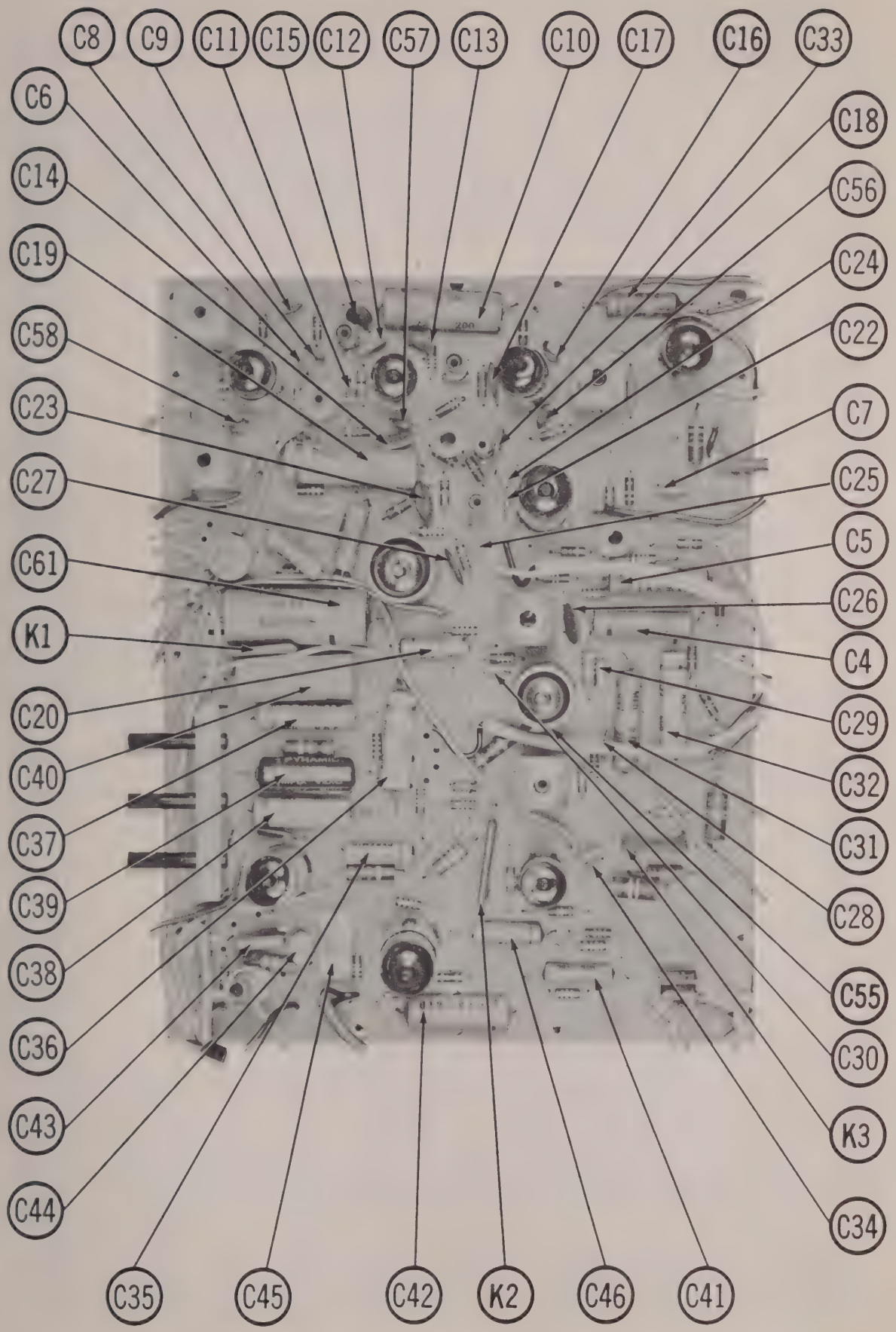
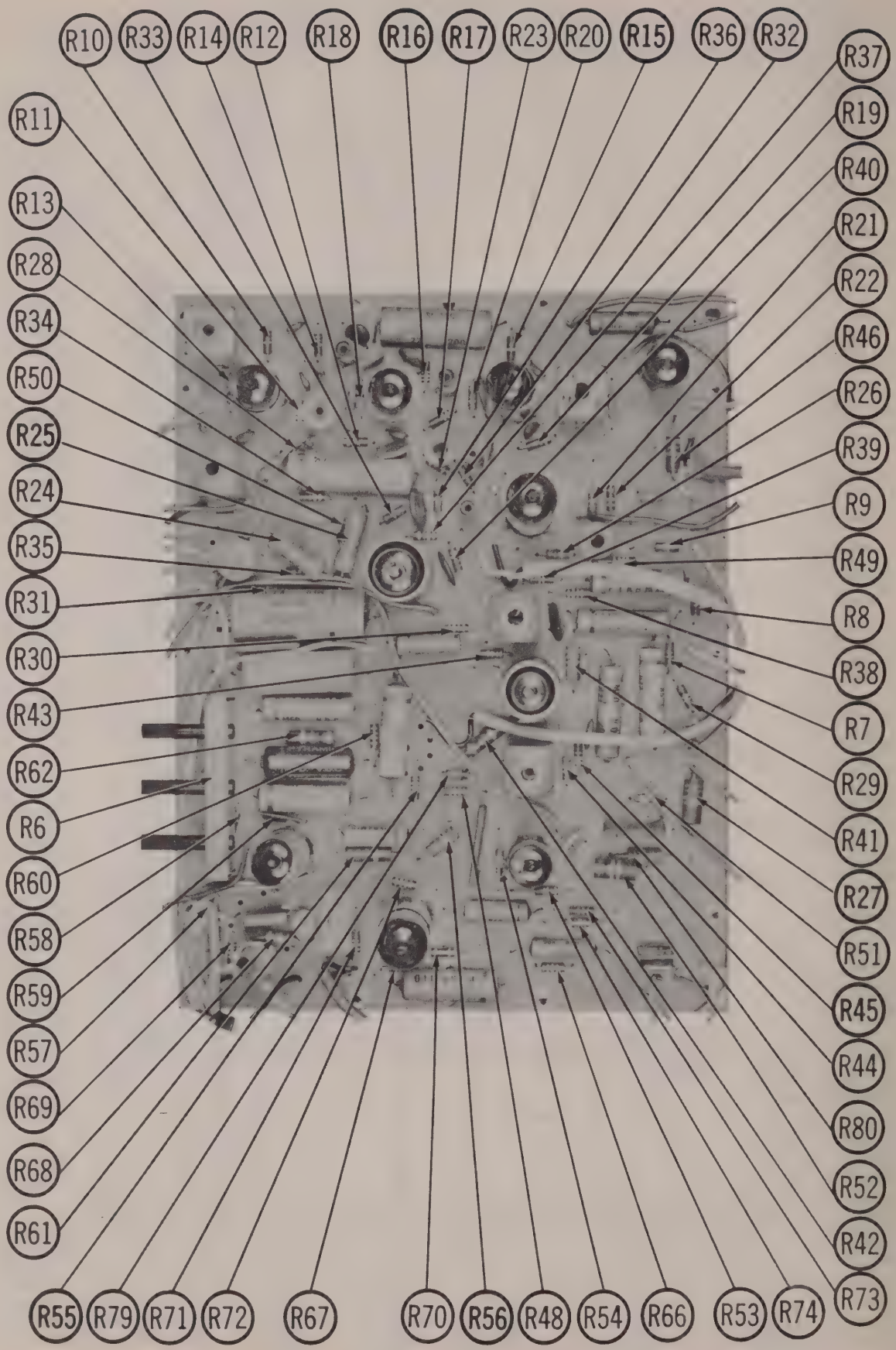
UHF TUNER 472V034H01



PRINTED BOARD — CAPACITOR IDENTIFICATION



PRINTED BOARD — RESISTOR IDENTIFICATION

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS FOR TUNERS 470V059H02, 470V060H02

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to point Ⓣ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓣ. Low side to chassis.	A201, A202, A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope.
2.	"	"	213MC	211.25MC 215.75MC	13	"	A204	Adjust for maximum amplitude of response similar to Fig. 201. Adjust by expanding or compressing coil turns.
			207MC	205.25MC 209.75MC	12		A205	
			201MC	199.25MC 203.75MC	11		A206	
			195MC	193.25MC 197.75MC	10		A207	
			189MC	187.25MC 191.75MC	9		A208	
			183MC	181.25MC 185.75MC	8		A209	
			177MC	175.25MC 179.75MC	7		A210	
			85MC	83.25MC 87.75MC	6		A211	
			79MC	77.25MC 81.75MC	5		A212	
			69MC	67.25MC 71.75MC	4		A213	
			63MC	61.25MC 65.75MC	3		A214	
			57MC	55.25MC 59.75MC	2		A215	

FIG. 201

VHF OSCILLATOR ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the Fine Tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Det. load.	A216	Adjust to place sound marker in trap notch as in Fig. 202. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A227	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

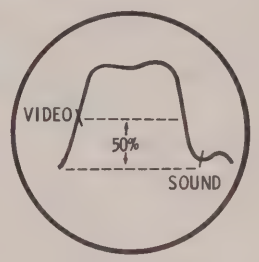


FIG. 202

PRE-ALIGNMENT INSTRUCTIONS FOR TUNER #470V057H02

Suggested alignment tools: A201 thru A208 ..... General Cement #5009, 8195, 8274, 8275, 8728, 8987
Walsco #2531

VHF OSCILLATOR ALIGNMENT

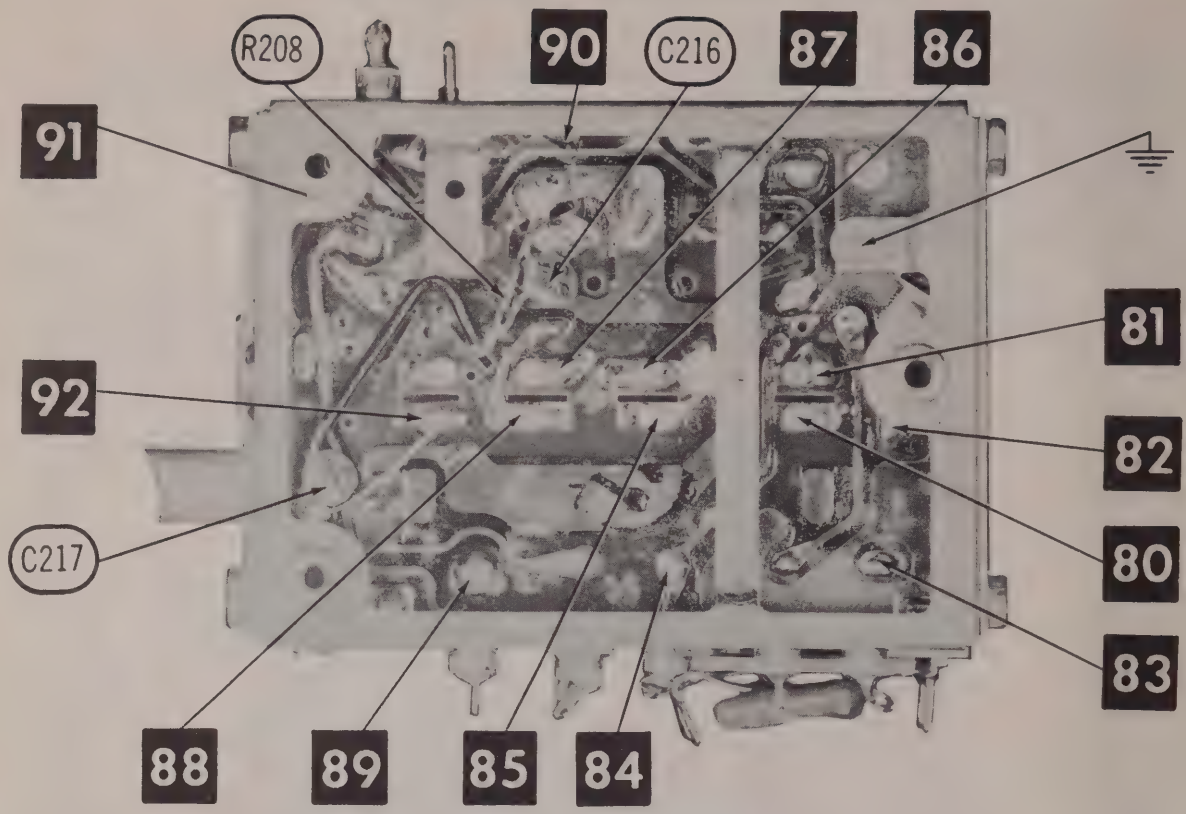
Set the Fine Tuning to the center of its range. Set the Channel Selector to the highest channel operating in the area and adjust the appropriate slug for best picture and sound. The slug for each channel operating in the area must be adjusted in a descending order from the highest to the lowest: A201 for channels 13 and 12, A202 for channels 11 and 10, A203 for channels 9 and 8, A204 for channel 7, A205 for channel 6 and 5, A206 for channels 4 and 3, and A207 for channel 2. If difficulty is experienced in adjusting channels 12, 10, 8, 5 or 3, adjust the correct coil for that channel by compressing or expanding coil turns for best picture and sound.

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

RF TRAP ALIGNMENT

A208 may be adjusted to attenuate any interfering signal between 40MC and 46MC. Observe the picture and adjust for MINIMUM beat interference.



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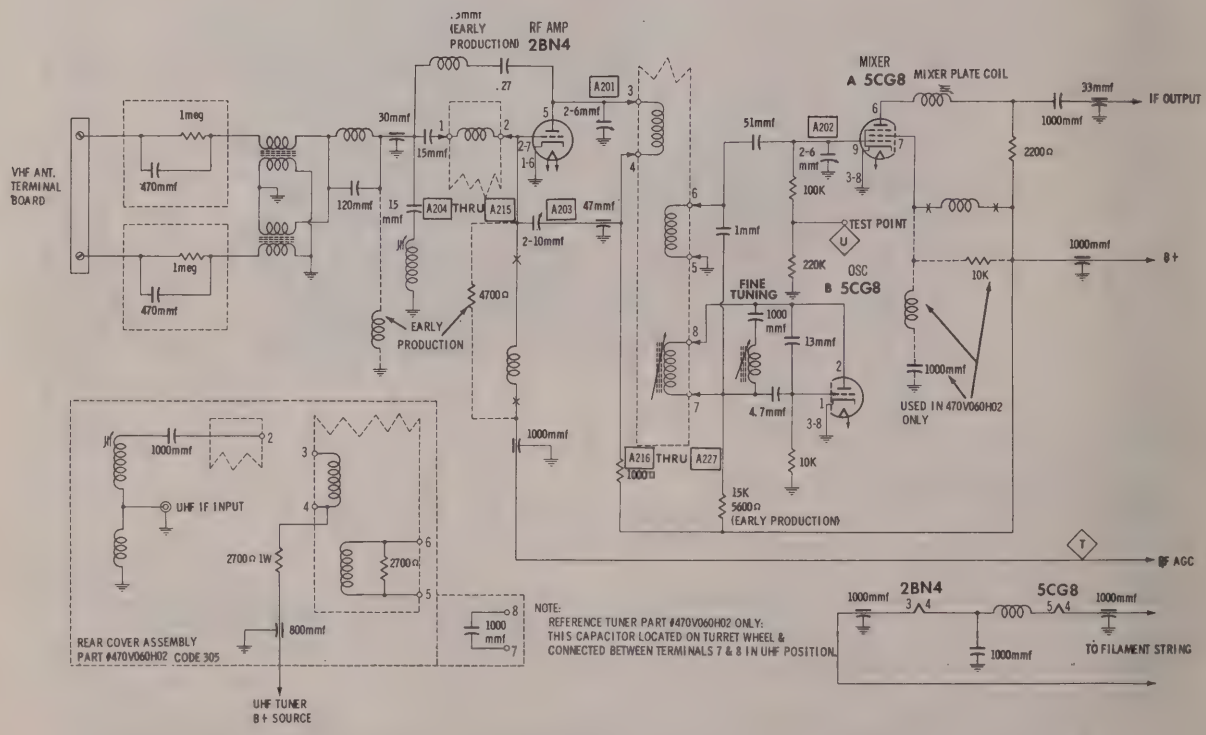
TUNER 470V057H02
BOTTOM VIEW



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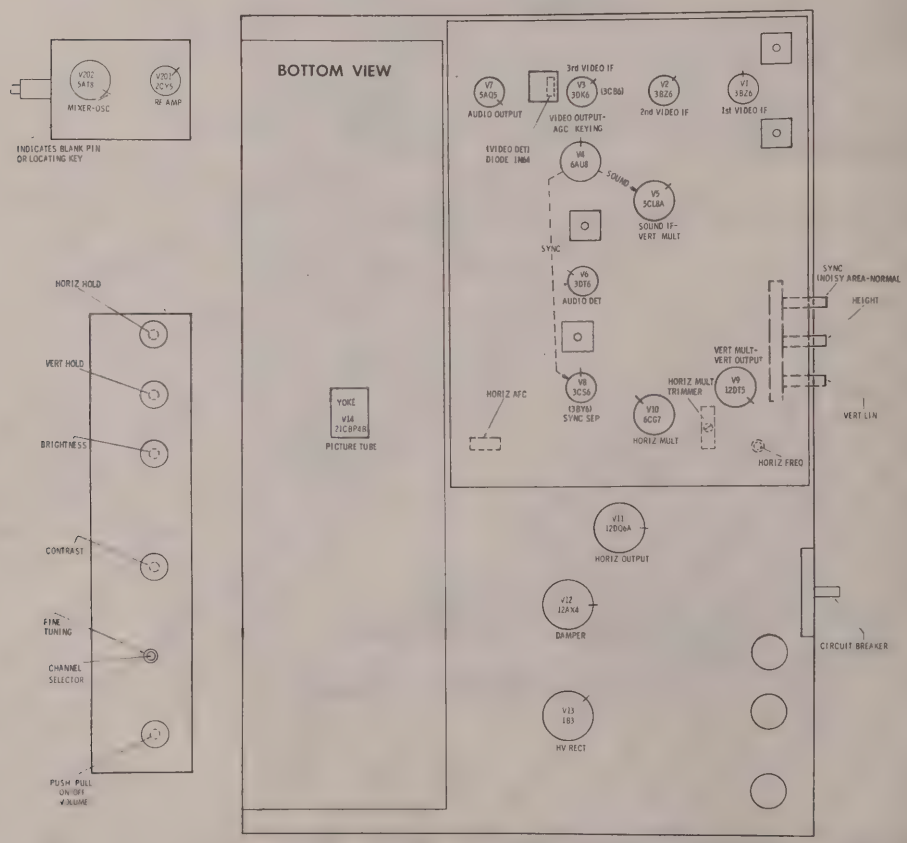
VHF TUNER 470V059H02, with UHF provisions, 470V060H02

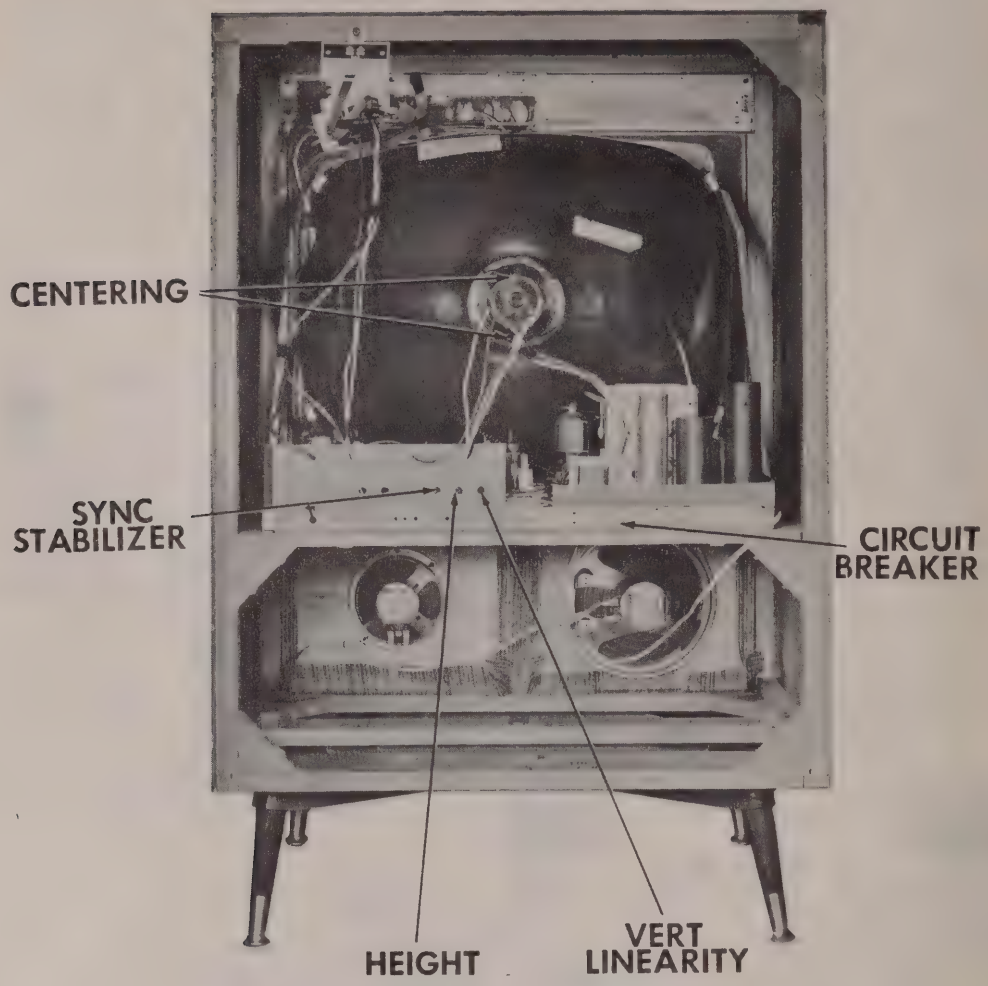
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BZ6	100K	47Ω	4.5Ω	5Ω	†2300Ω	†2300Ω	0Ω		
V2	3BZ6	100K	27Ω	5Ω	5.5Ω	†2300Ω	†2300Ω	0Ω		
V3	3DK6	.1Ω	150Ω	5.5Ω	6Ω	†2300Ω	†2300Ω	0Ω		
V4	6AU8	†50K	†35K	600K	8.5Ω	7Ω	10Ω	3900Ω	• †35K	†5400Ω
V5	5CL8A	• 1.4meg	• ‡3.7meg	0Ω	9.5Ω	8.5Ω	†40K	†25K	0Ω	470K
V6	3DT6	4.5Ω	820Ω	9.5Ω	10Ω	‡1meg	†47K	560K		
V7	5AQ5	0Ω	330Ω	6Ω	7Ω	†1500Ω	†1000Ω	0Ω		
V8	3CS6	50K	0Ω	10Ω	11Ω	†150K	†11K	2.2meg		
V9	12DT5	†1000Ω	NC	•1.3meg	13Ω	11Ω	•1.3meg	220Ω	NC	†1300Ω
V10	6CG7	†57K	• 220K	1000Ω	1.5Ω	0Ω	†48K	2.3meg	1000Ω	0Ω
V11	12DQ6A	NC	39Ω	NC	†16K	470K	NC	36Ω	0Ω	TOP CAP ‡14Ω
V12	12AX4GTA	NC	NC	INF	NC	†1Ω	NC	39Ω	42Ω	
V13	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡625Ω
V14	21CBP4B	1.5Ω	150K	Pin 6 †1800Ω	Pin 10 ‡690K	Pin 11 •170K	Pin 12 3Ω			
V201	2CY5	2.2meg	0Ω	3Ω	3.5Ω	†1800Ω	†15K	0Ω		
V202	5AT8	15K	†6500Ω	0Ω	4.5Ω	3.5Ω	†5100Ω	†3600Ω	0Ω	100K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 270V SOURCE.
‡ MEASURED FROM PIN 3 OF V12.
NC NO CONNECTION.



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Suggested Alignment Tools:

B1 ..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

B2 .....GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

Connect a short clip lead across the Horizontal Stabilizing coil (L17).

Set the Horizontal Hold control to the center of its range.

Connect the DC probe of a VTVM to point ⟨E⟩. Common to chassis.

Tune in a TV station and adjust the Horizontal Multivibrator Trimmer (B1) for zero bolts on the VTVM. If zero can be approached, but not reached, set the Horizontal Hold control slightly to one side of center for zero voltage.

Remove the jumper from L17 and adjust the Horizontal Frequency slug (B2) for zero reading on the meter. Check lock-in action by switching from channel to channel. The picture should pull into synchronization on all channels.

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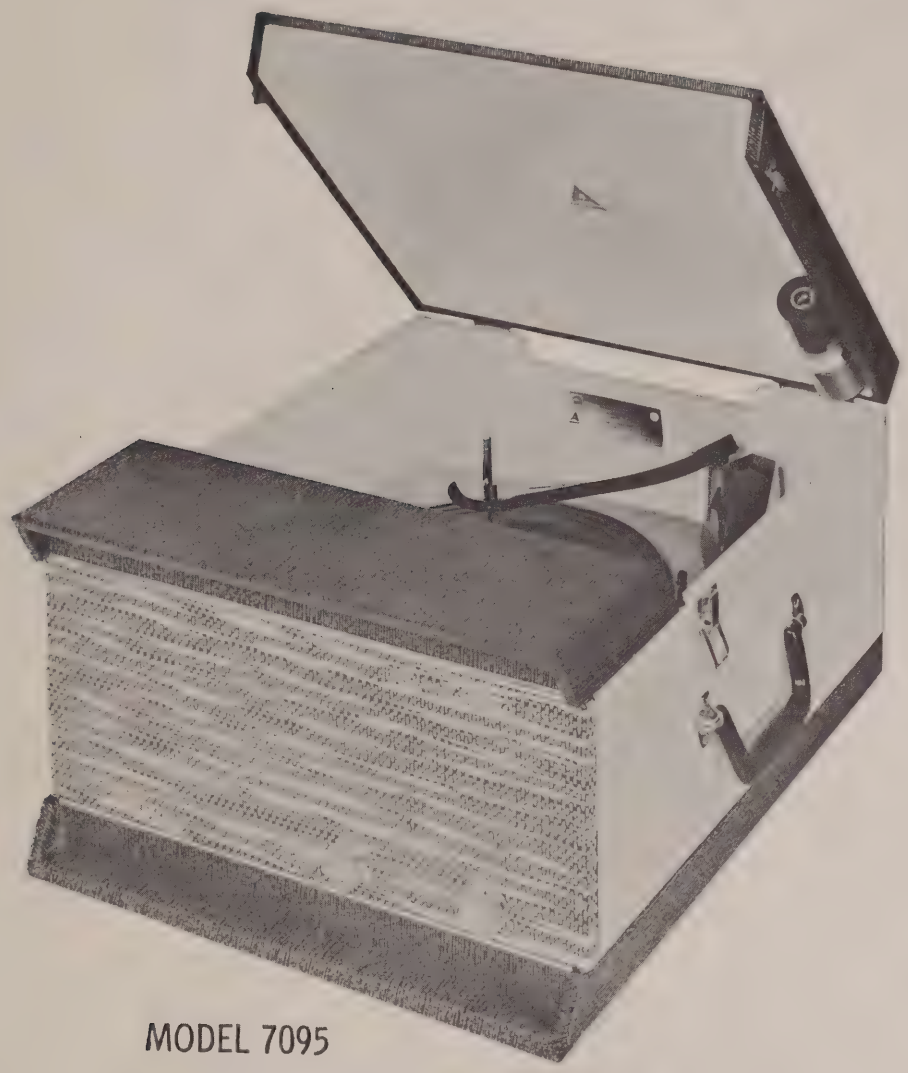
with CIRCUITRACE*

ARVIN MODELS 1597, 7095, 7096, 7097 (Ch. 1.47800, 11.46000, 11.46400)

ARVIN MODELS 1597, 7095, 7096, 7097
(Ch. 1.47800, 11.46000, 11.46400)



MODEL 7095

ARVIN MODELS 1597, 7095, 7096, 7097
(Ch. 1.47800, 11.46000, 11.46400)

TRADE NAME	Arvin Models 1597 (Ch. 1.47800), 7095, (Ch. 11.46400), 7096, 7097 (Ch. 11.46000)
MANUFACTURER	Arvin Industries, Inc., Columbis, Indiana
TYPE SET	AC Operated 4 Tube Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 55 Watts, .54 Amp. @117 Volts AC (Less Motor)

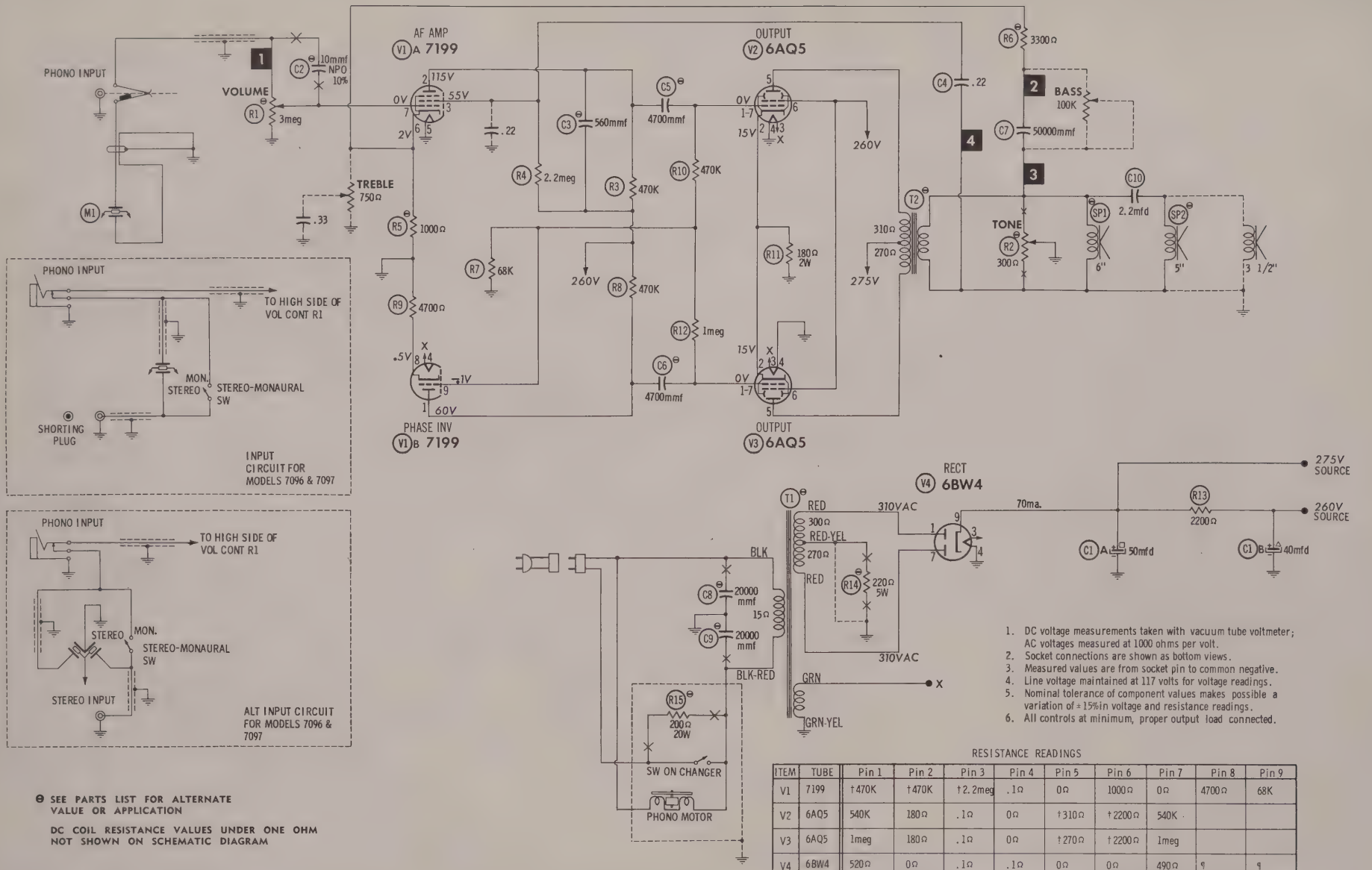
FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SIMILAR V-M 1200A — PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

J155

SET 451 FOLDER 3



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	7199	†470K	†470K	†2.2meg	.1Ω	0Ω	1000Ω	0Ω	4700Ω	68K
V2	6AQ5	540K	180Ω	.1Ω	0Ω	†310Ω	†2200Ω	540K		
V3	6AQ5	1meg	180Ω	.1Ω	0Ω	†270Ω	†2200Ω	1meg		
V4	6BW4	520Ω	0Ω	.1Ω	.1Ω	0Ω	0Ω	490Ω	¶	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 9 OF V4.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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ARVIN MODELS 1597, 7095, 7096, 7097
(Ch. 1.47800, 11.46000, 11.46400)

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. -Phase Inv.	7199	
V2	Output	6AQ5	
V3	Output	6AQ5	
V4	Rectifier	6BW4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ARVIN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■ 50	300	43711-6		XB0254	TCD-2274		TVLS-2575. 8*	
B	▲ 40	300							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA ARVIN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	10		NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CNO-410	5TCCB-V10S 10%	①
C3	560				BPD-00056	DD-561	L10T56	B-356	5GA-T56	②
C4	. 22	200			P288N-22		CUB2P22	GEM-2022	2TM-P22	
C5	4700				BPD-0047	DD-472	BYA10D47	B-247	5HK-D47	③
C6	4700				BPD-0047	DD-472	BYA10D47	B-247	5HK-D47	③
C7	50000				BPD-05	DF-503	CUB6S5	GEM-615	5HK-S5	
C8	20000				BPD-02	DD-203	BYB6S2	B-120	5HK-S2	④
C9	20000				BPD-02	DD-203	BYB6S2	B-120	5HK-S2	④
C10	2. 2	3			NPO-DI 2.2	DTZ-2R2	C10V22C	CNO-522	5TCCB-V22S	

① Not used in some versions, Model 1597 uses 12mmf in this application.
② Models 7096, 7097 use 470mmf in this application, not used in Model 1597.
③ Model 1597 uses 10000mmf in this application.
④ Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ARVIN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3meg	½	45250-11①	B-85	A47-3meg-Z	Q13-140	U57	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2	300Ω	½	45250-12②					Tone

① Model 1597 uses Part #45250-13; Models 7096, 7097 use Part #44500-24.
② Model 1597 uses Part #45250-16; Models 7096, 7097 use 750Ω Treble Part #44500-25, and 100K Bass Part #44500-26.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ARVIN PART No.	NOTES
R3	470K			
R4	2. 2meg			
R5	1000Ω			①
R6	3300Ω			②
R7	68K			
R8	470K			
R9	4700Ω			

ITEM No.	RATING OHMS	RATING WATT	ARVIN PART No.	NOTES
R10	470K			
R11	180Ω	2	44448-8	
R12	1meg			
R13	2200Ω			
R14	220Ω	5		③
R15	200Ω	20		③

① Replace with 750Ω control in Models 7096, 7097
② Model 1597 uses 6800Ω in this application; Models 7096, 7097 use 4700Ω.
③ Not used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA ARVIN PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ	620 VCT	6. 3V ⓐ	46251①						
	. 54A	ⓐ. 070A	2. 1A							

① Alternate Part #46251-2
Model 1597 uses Part #46251-3; Models 7096, 7097 use Part #46251-4.

PRINTED BOARD

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ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ARVIN PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6600Ω CT	6-8Ω	46468-1	24S61①	A-2901①	AU-600①	A-3823①	24S61①	S-53X①	① Use original frame. ② Used in some versions of Model 7095.
	6500Ω CT	6-8Ω	46131-1②	24S61	A-2901	AU-600	A-3823	24S61	S-53X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ARVIN PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	6"	PM	6-8Ω	46408-1①	6A1	① Model 7095
SP2	5"	PM	6-8Ω	46407①	4A1	② Models 7096, 7097
	6"x 9"	PM	6-8Ω	46255-1②		③ Model 1597
	6"x 9"	PM	6-8Ω	46255-2③		
	4"	PM	6-8Ω	46129②③		
	3½"	PM	6-8Ω	46364②		

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA ARVIN PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	REMARKS
M1	46505-1① 46505-2②	93-T				① Models 7095 & 7096 ② Model 7097

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA ARVIN PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2			W-201DS ♦†	† Jewel ♦ Diamond

CABINETS & CABINET PARTS

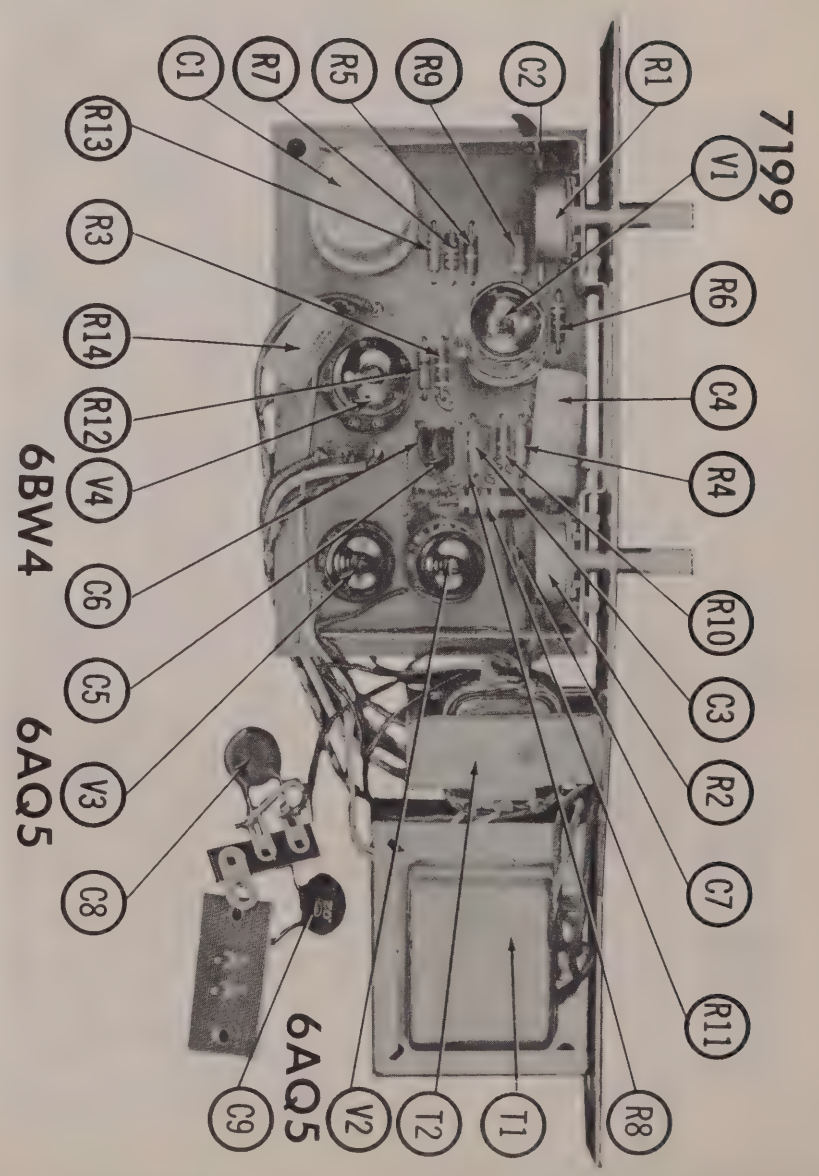
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	46410-1	Volume, Model 7095
Knob	46365-97	Volume, Model 7096
Knob	46586-67	Volume, Model 7097
Knob	46627-67	Volume, Model 1597
Knob	46410-2	Tone, Model 7095
Knob	46628-67	Tone, Model 1597
Knob	46366-97	Treble, Model 7096
Knob	46587-67	Treble, Model 7097
Knob	46367-97	Bass, Model 7096
Knob	46588-67	Bass, Model 7097
Cabinet	46174-19	Model 7095
Cabinet	46133-148	Model 7096
Cabinet	46577-19	Model 7097
Cabinet	46612-19	Model 1597

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No.	8401
Phono Pick-up Arm Cable	Use BELDEN No.	8430 (Two Conductor - Twisted)

CHASSIS—TOP VIEW

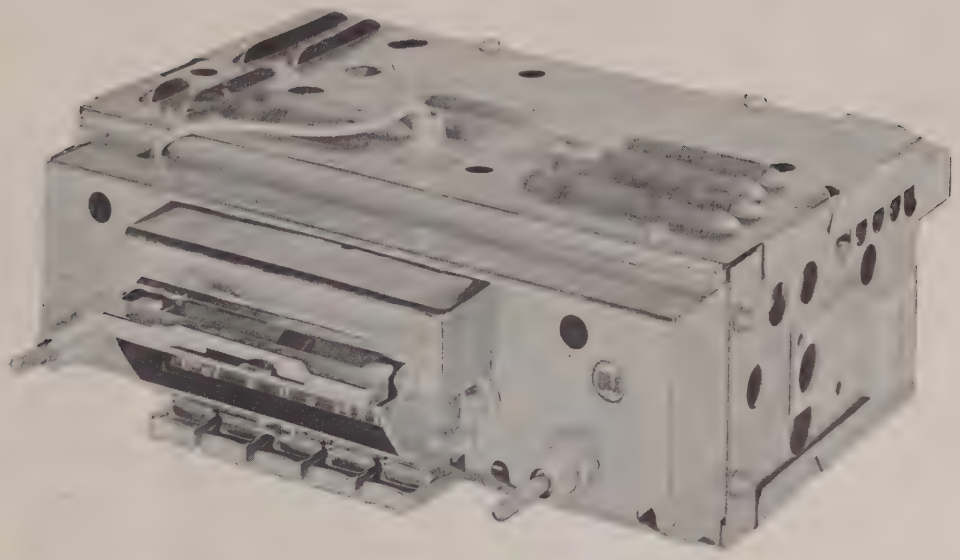


PHOTOFACT* Folder with CIRCUITRACE*

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

CHEVROLET
MODEL 987893

CHEVROLET
MODEL 987893



TRADE NAME	Chevrolet Model 987893 (For 1959 Chevrolet Automobiles)
MANUFACTURER	Delco Radio Div., G. M. Corp., Kokomo, Indiana
TYPE SET	Battery Operated 5 Tube Custom Built AM Automobile Receiver With Transistorized Output
POWER SUPPLY	12 Volt Storage Battery
TUNING RANGE—BROADCAST	540KC-1615KC
RATING	3.5 Amp@12.6 Volts DC (9 Amp When Seeking)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

* To tune to high frequency stop, put a .070" feeler gauge against the high frequency stop. Tune manually to allow treadle bar arm to run against the feeler gauge. This sets the dial near the point where the treadle solenoid switch closes.

Suggested alignment tools:
A1, A2, A3, A4..... GENERAL CEMENT #8282, 8606, 8606L, 9091
WALSCO #2526, 2541, 2543, 2544
A5, A9, A10..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531
A6, A7, A8..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 7 (gird) of converter (V2). Low side to chassis.	265KC (400~ Mod.)	High freq. end stop (See Note*)	DC probe to point A. Low side to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	"	"	"	A2, A3, A4	Adjust for maximum deflection.
	Check setting of oscillator coil core (A5). Rear of core should be 1 5/8" from mounting end of coil form.						
3.	82mmf	High side to antenna receptacle. Low side to chassis.	1615KC	"	"	A6, A7, A8	Adjust for maximum deflection.
4.	"	"	600KC	600KC signal	"	A9, A10	Adjust for maximum deflection.
5.	"	"	1615KC	1615KC signal	"	A7, A8	"
	With receiver tuned to an 1100KC signal, adjust pointer adjustment so that pointer coincides with 1100KC mark on dial.						
	With radio installed in car and antenna fully extended, tune in a weak station near 1000KC and adjust A8 for maximum output.						

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

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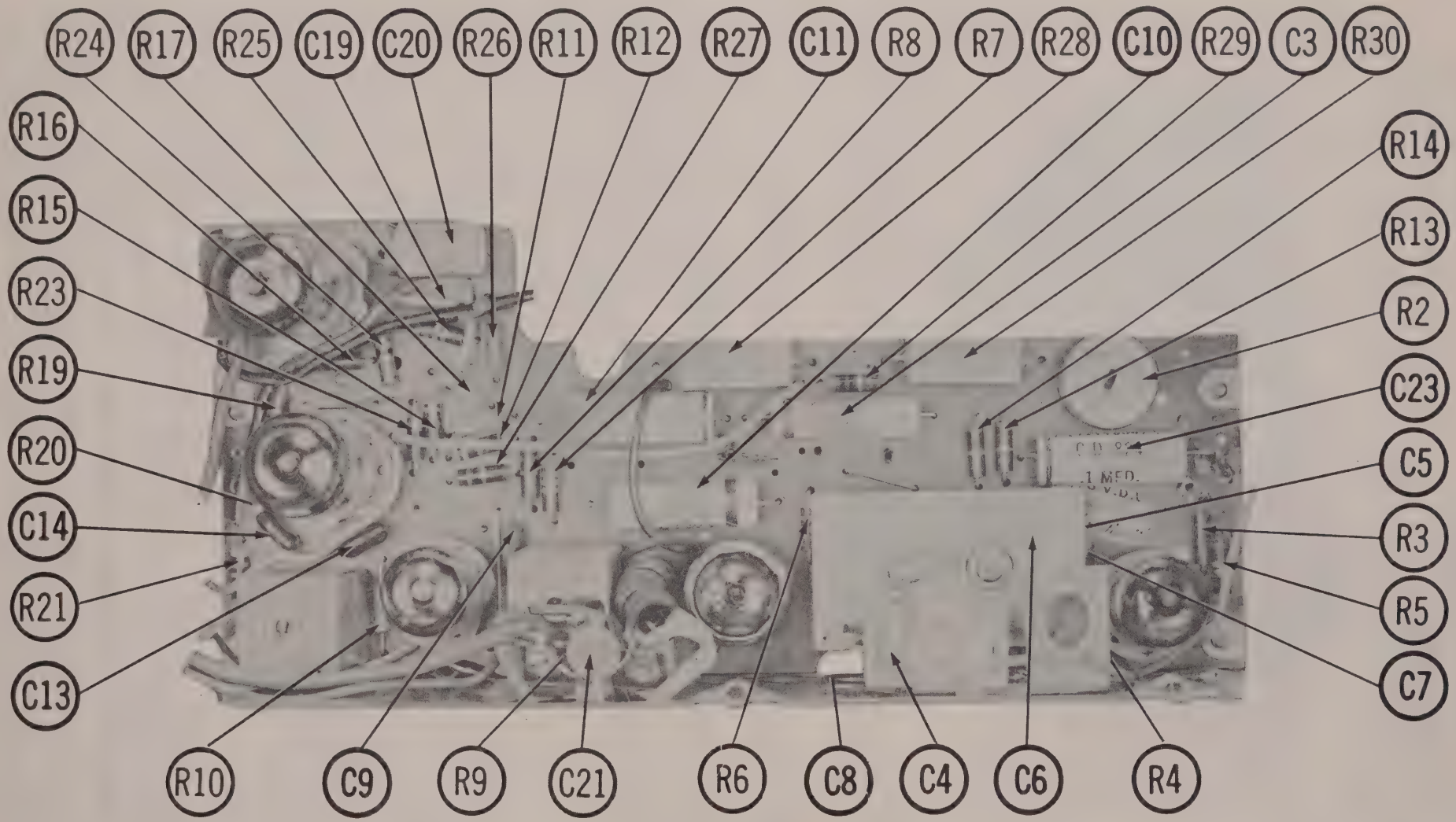
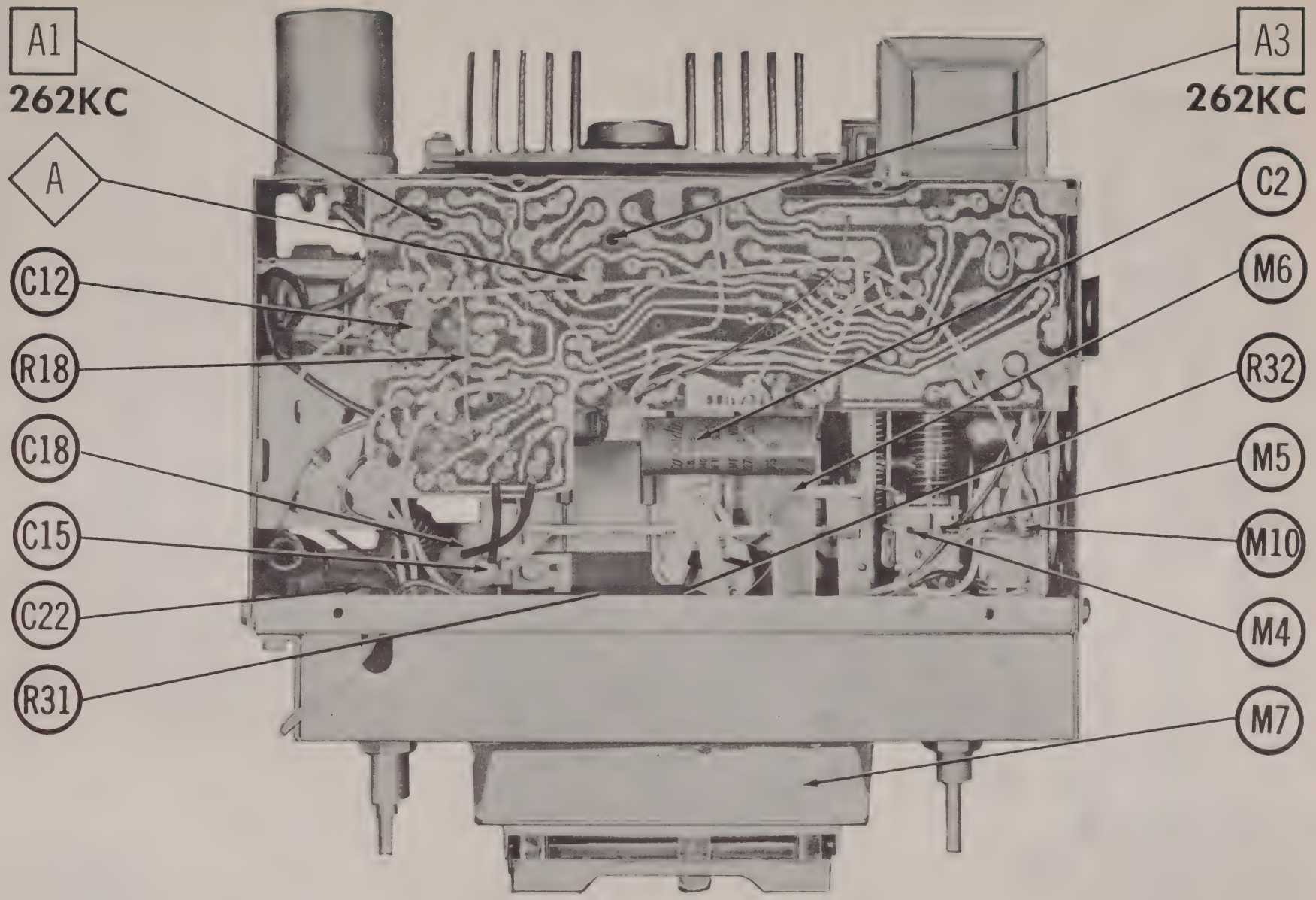
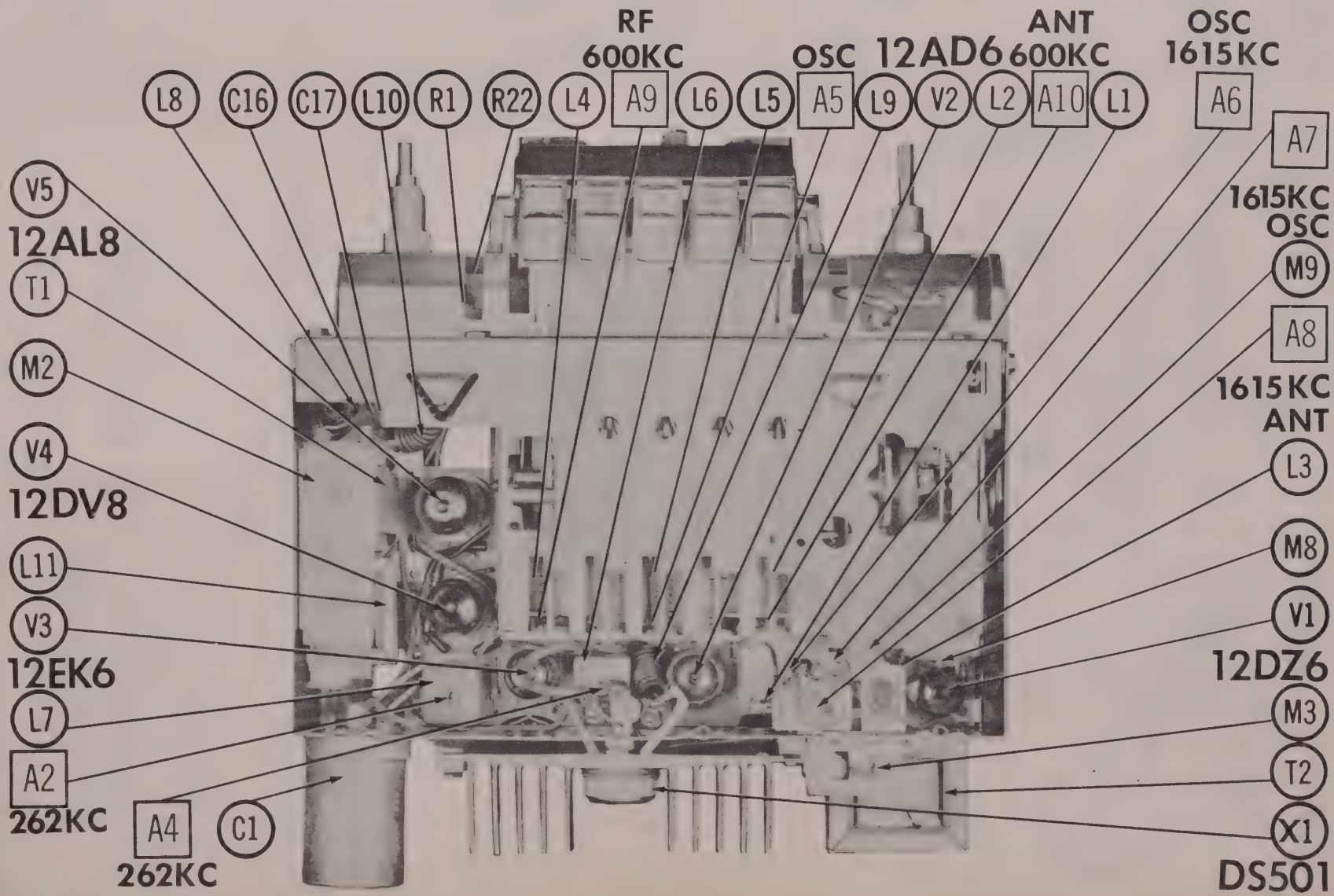
SET 451 FOLDER 4



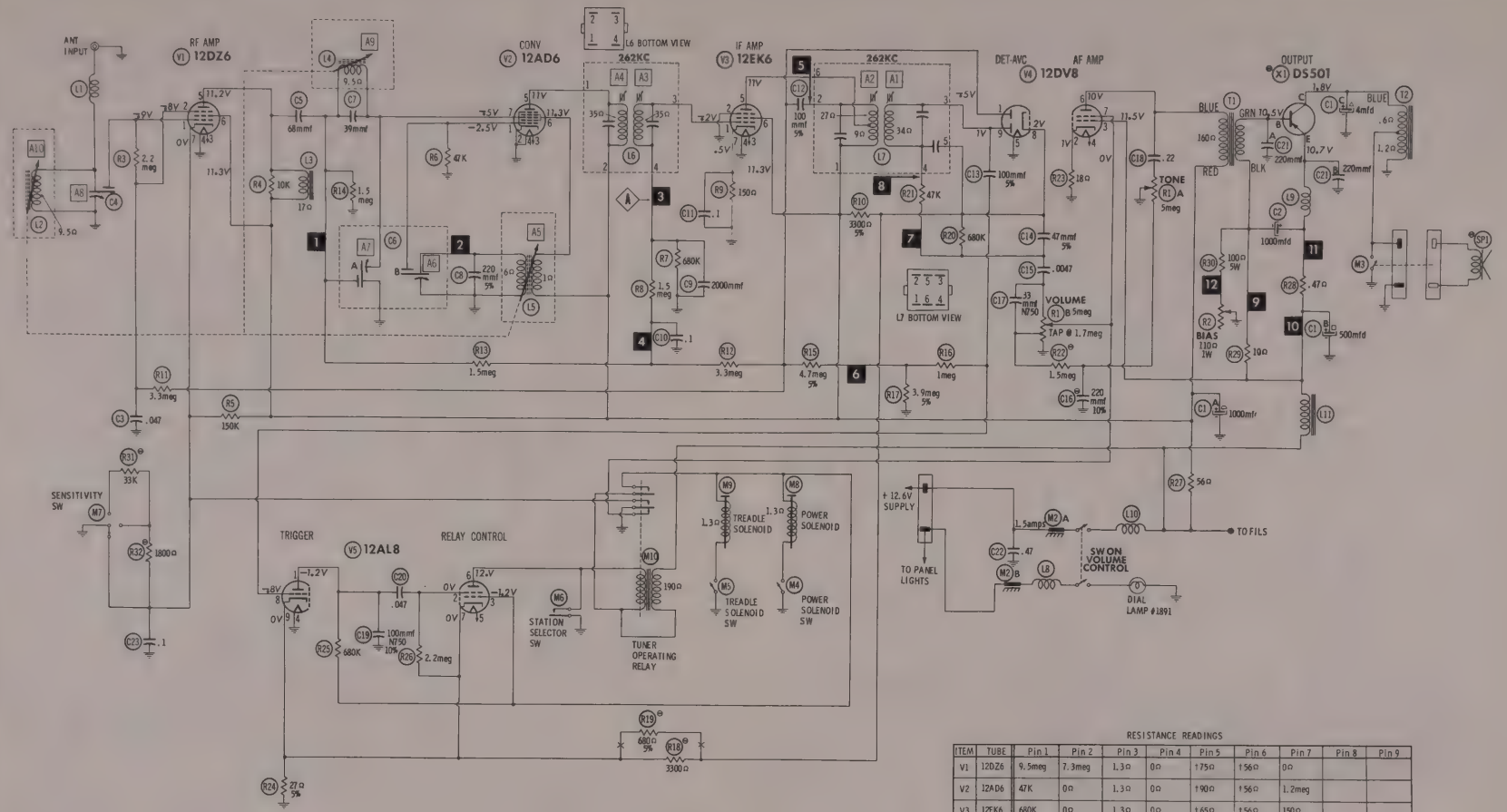
PRINTED BOARD – CAPACITOR & RESISTOR IDENT.



CHASSIS – BOTTOM VIEW



CHASSIS – TOP VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12DZ6	9.5meg	7.3meg	1.3Ω	0Ω	†75Ω	†56Ω	0Ω		
V2	12AD6	47K	0Ω	1.3Ω	0Ω	†90Ω	†56Ω	1.2meg		
V3	12EK6	680K	0Ω	1.3Ω	0Ω	†65Ω	†56Ω	150Ω		
V4	12DV6	3.2meg	18Ω	†.4Ω	1.3Ω	0Ω	†215Ω	0Ω	560Ω	730K
V5	12AL8	INF	2.2meg	INF	0Ω	1.3Ω	†190Ω	27Ω	3.7meg	27Ω

TRANSISTOR CIRCUIT RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.
† MEASURED FROM JUNCTION OF R27 AND L10.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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CHEVROLET
MODEL 987893

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12DZ6	
V2	Converter	12AD6	
V3	IF Amplifier	12EK6	

ITEM No.	USE	TYPE	NOTES
V4	Det.-AVC-AF Amp.	12DV8	
V5	Trigger-Relay Control	12AL8	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	DS501①	Output				2N677	PNP

① Alternate type 2N278

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	▲1000	16	7273775	AFH3-54-40		WP300.9		TVLS-3021.5*	
B	■500	16							
C	▲4	16AC							
C2	1000	1	7271557	PRS6V1000	BR1000-6	TC310	TD-1000-6	TVA-1104	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	DELCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	.047	200		7271670	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C4				7273107						
C5	68			6369	BPD-000068	DD-680	L10Q68	UC-5468	5GA-Q68	
C6A										
B				7273693						
C7	39			6366	DI 39	DD-390	L10Q39	UC-5439	5GA-Q39	
C8	220		5%	7273511	1469-00022	TCZ-220	22R5T22		MS-322	
C9	2000			6352	BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C10	.1	200		7238789	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C11	.1	200		7238789	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C12	100		5%	1219498	1469-0001	TCZ-100	22R5T1	MCE235	MS-31	
C13	100		5%	1219498	1469-0001	TCZ-100	22R5T1	MCE235	MS-31	
C14	47		5%	6367	1469-000047	TCZ-47	22R5Q47	MCE225	MS-447	
C15	.0047	200		7271556	P288N-0047	D6-472	CUB6D47	GEM-6247	2TM-D47	
C16	220		10%		DI 220	DD-221	L10T22	JL-322	5GA-T22S 10%*	①
C17	33		N750	6365	N750-DI 33	DTN-33	C10Q33U	CN7-433	5TCU-Q33	
C18	.22	100		7271555	P288N-22		CUB2P22	GEM-2022	2TM-P22	
C19	100		N750 10%	6371	N750-DI 100	DTN-100	L10T1U	CN7-310	5TCU-T1S 10%*	
C20	.047	100		7272519	P288N-047	DF-503	P288N-047	GEM-4147	2TM-S47	
C21A	220			6375	BPD-00022	DD-221	L10T22	JL-320	5GA-T22	
B	220				BPD-00022	DD-221	L10T22	JL-320	5GA-T22	
C22	.47	50		7269780	P288N-47		CUB2P47	GEM-2047	2TM-P47	
C23	.1	200		6690	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	

① Some versions may use 510mmf - 10% in this application (Part #7274615).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

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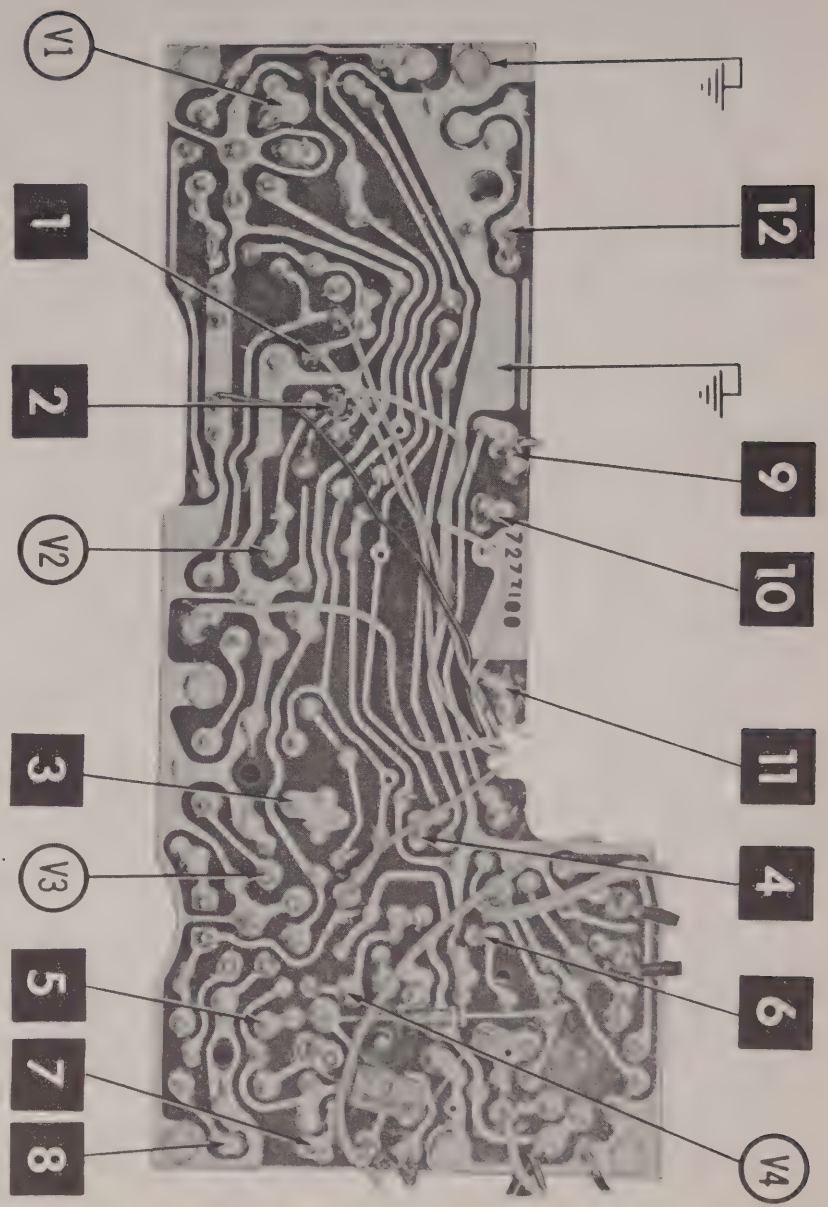
PRINTED BOARD



ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING RESIST-ANCE	RATING WATTS	REPLACEMENT DATA DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	5meg		1221271				■ UE4005-S	Tone
B	5meg							Volume, Tap ⓐ 1.7meg
C	Switch							
R2	110Ω	1(ww)	7273776				PFL-100	Bias

■ "STA-LOC" equivalent: FH56A, RU56T26, OS1125, IS1562, US-42

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	DELCO PART No.	NOTES
R3	2.2meg		1239	
R4	10K		1137	
R5	150K		1225	
R6	47K		1219	
R7	680K		1233	
R8	1.5meg		1237	
R9	150Ω		1115	
R10	3300Ω 5%		1220173	
R11	3.3meg		1241	
R12	3.3meg		1241	
R13	1.5meg		1237	
R14	1.5meg		1237	
R15	4.7meg 5%		7271456	
R16	1meg		1235	
R17	3.9meg 5%		7271627	

ITEM No.	RATING OHMS	RATING WATT	DELCO PART No.	NOTES
R18	3300Ω			Note 1
R19	680Ω 5%			Note 2
R20	680K		1233	
R21	47K		1219	
R22	1.5meg		1237	Note 3
R23	18Ω		1104	
R24	27Ω 5%		7273769	
R25	680K		1233	
R26	2.2meg		1239	
R27	56Ω		1110	
R28	.47Ω		7270608	
R29	10Ω		1101	
R30	100Ω	5	7271525	
R31	33K			Note 4
R32	1800Ω			Note 4

Note 1. Some versions may use 560Ω 5% in this application (Part #7274580).
Note 2. Not used in some versions.
Note 3. Some versions may use 1.2meg in this application (Part #1236).
Note 4. Part of M7.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA DELCO PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Ant. Coil	7255738	19-1004	19-1004	BC-565	4610		
L2	Ant. Tuning Coil	1221138						
L3	RF Choke	7269684						1.8MH
L4	RF Tuning Coil	1221138						
L5	Osc. Tuning Coil	1221151						
L6	Input IF	1221257	16-6756	16-6756	BC-344	13-PH1		
L7	Output IF	1221253						
L8	RF Choke	1217846						1.4uh
L9	RF Choke	1217846						1.4uh
L10	"A" Lead Choke	1217846						1.4uh

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	RATINGS DC RES.	RATINGS INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L11	.9A	.7Ω	.011HY	7271321				TC-2		

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO PRI.	TURNS RATIO SEC.	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	13 :	1	7274354			TA-51			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	9Ω Tap ⓐ 3-4Ω	1221290							

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA DELCO PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	6"x9"	PM	3-4Ω	7272731 ① 7273271	69A3	① Alt. part #

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA DELCO PART No. FUSE	DELCO PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1		7.5A 32V	455107					

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M2	Spark Plate	1220885	
M3	Switch	7271424	Speaker Interlock
M4	Switch	7268030	Power Solenoid
M5	Switch	7268030	Treadle Solenoid
M6	Switch	7273705	Station Selector
M7	Switch	7273230	Sensitivity(Includes Static Selector Bar)
M8	Solenoid & Plunger	1221160	Power
M9	Solenoid & Plunger	1221161	Treadle
M10	Relay	7270545	Tuner Operating
	Printed Board	7273100	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	1990894	Tuning
Knob	7272970	Tone
Knob	7272969	Dummy
Pushbutton Ass'y.	1221269	Includes Pushbuttons, Front Bearing Plate & Slides
Push Button	7273345	Five Used
Pointer	7273102	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

COLUMBIA RECORDS
MODELS 642, 682

COLUMBIA RECORDS
MODELS 642, 682

MODEL 642

COLUMBIA RECORDS
MODELS 642, 682

TRADE NAME	Columbia Records Models 642, 682
MANUFACTURER	Columbia Records, 799 Seventh Ave., New York 19, N. Y.
TYPE SET	AC Operated 4 Tube Stereo Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 40 Watts, .41 Amp. @117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SIMILAR V-M 1200A — PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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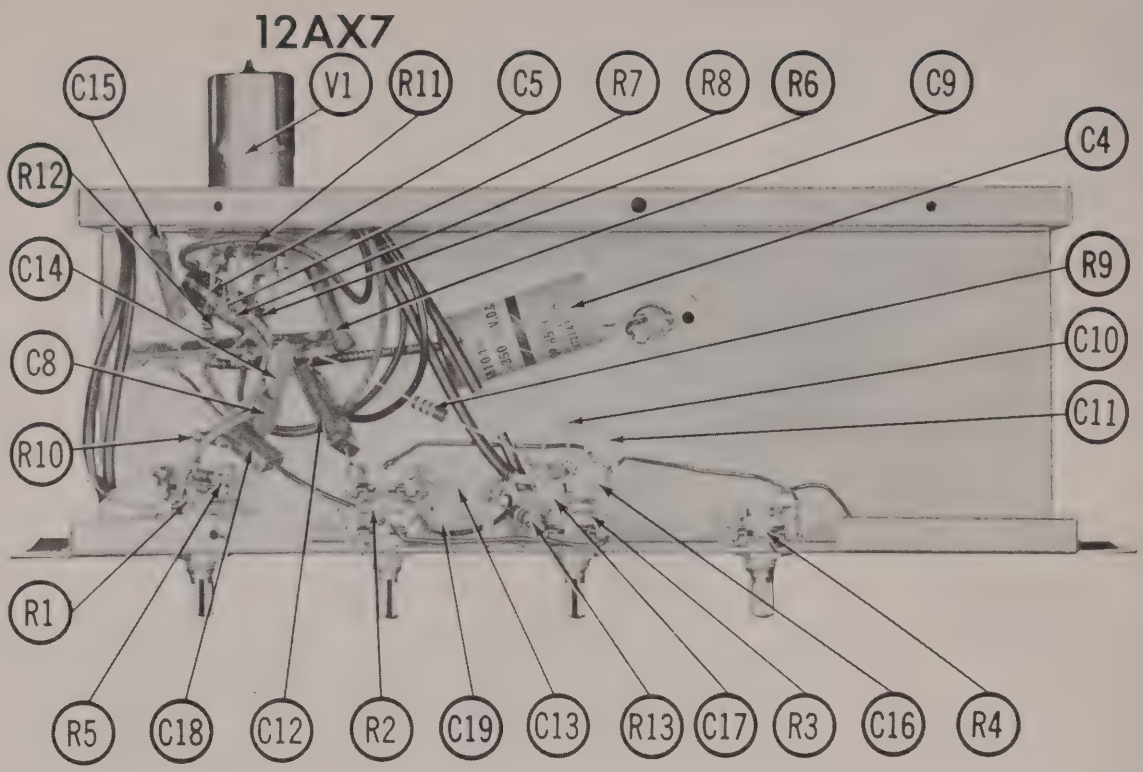
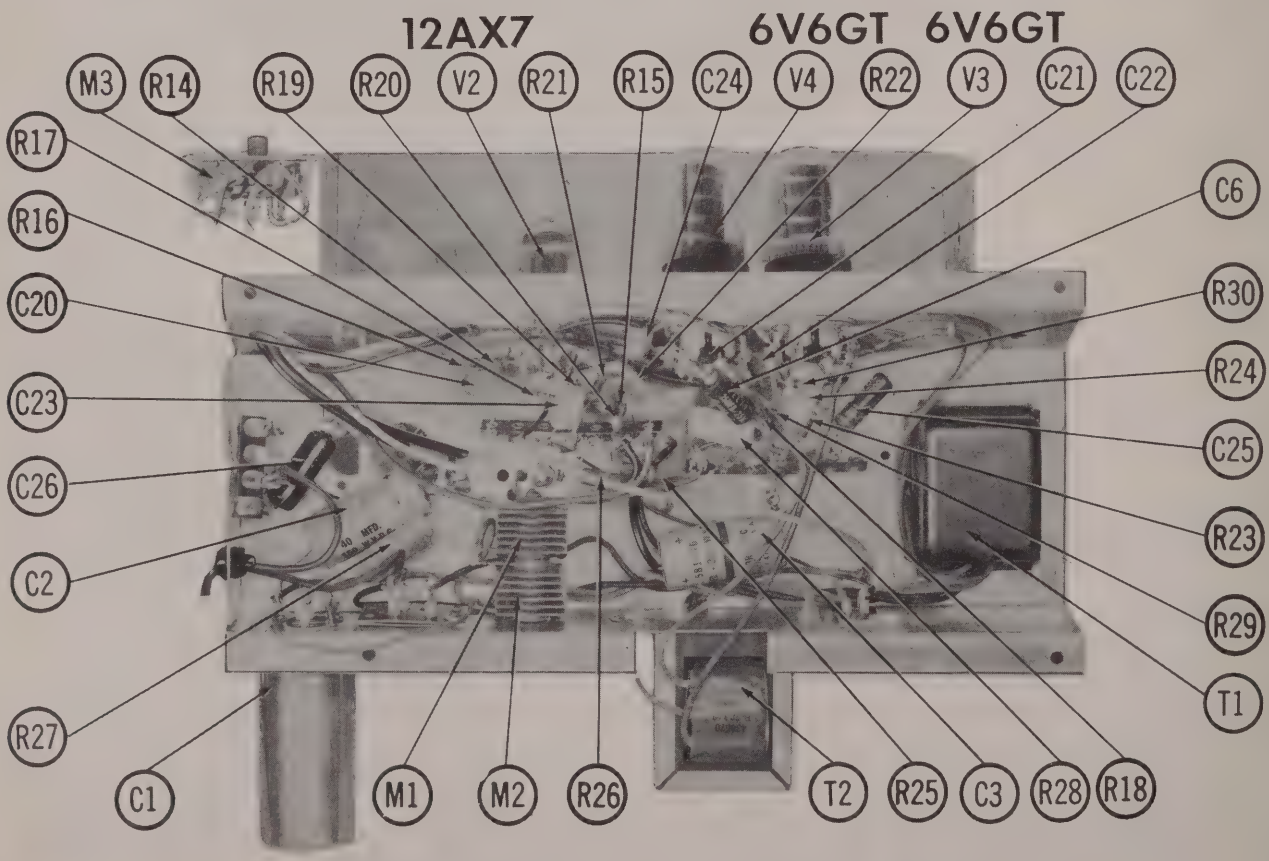


PREAMPLIFIER CHASSIS - BOTTOM VIEW



AMPLIFIER CHASSIS - BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Right Channel Pre Amp.- Left Channel Pre Amp.	12AX7	
V2	Right Channel AF Amp. - Left Channel AF Amp.	12AX7	
V3	Right Channel Output	6V6GT	
V4	Left Channel Output	6V6GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	Columbia PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	150	11A705	AFH3-44	C1100	FP369.1	TMT-144	TVL-3758	
B	▲40	350							
C	■40	350							
C2	40	150	11A704	PRS150V40	BR4015	TC48	TD-40-150	TVA-1413	
C3	20	350	11A740	PRS450V20	BR2035	TC65	TD-20-350	TVA-1608	
C4	20	350	11A740	PRS450V20	BR2035	TC65	TD-20-350	TVA-1608	
C5	25	25	Ⓘ	PRS25V25	BBR25-25	TC26	TD-25-25	TVA-1205	
C6	25	25	Ⓘ	PRS25V25	BBR25-25	TC26	TD-25-25	TVA-1205	
C7	2	50NP	11A716	NP-PRS50V2	BBR4-50 † BBR4-50	TCN502		TVAS-1301.1*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Ⓘ Some versions may use 20mfd in this application (Part #11A739).
† Connect Negative Leads together.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	Columbia PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C8	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C9	5000				SI 5000	D6-502	BYA10D5	B-250	5HK-D5	
C10	470				BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C11	5000				BPD-005	DD-502	BYA10D5	B-250	5HK-D5	Note 1
C12	180				1464-00018	DD-181	22R5T18		MS-318	
C13	2000				BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C14	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C15	5000				SI 5000	DD-503	BYA10D5	B-250	5HK-D5	
C16	470				BPD-00047	DD-471	BYA10T47	B-347	5HK-T47	
C17	5000				BPD-005	DD-502	BYA10D5	B-250	5HK-D5	Note 1
C18	180				1464-180	DD-181	22R5T18		MS-318	
C19	2000				BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C20	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C21	.01	400			P488N-01	DD-103	CUB4S1	GEM-411	4TM-S1	
C22	.001	1000			P1088N-001	DD-102	CUB10D1	GEM-1021	10TM-D1	
C23	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C24	.01	400			P488N-S1	DD-103	CUB4S1	GEM-411	4TM-S1	
C25	.001	1000			P1088N-001	DD-102	CUB10D1	GEM-1021	10TM-D1	
C26	.05	400			P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	

Note 1. Some versions may use 4000mmf in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	Columbia PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	½	9A599	B-76		Q13-139	† UE1874	Loudness, Left Chan. Note 1
B	2meg	½		SR-76		M13-139		Loudness, Right Chan. Note 1

CONTROLS (cont)

ITEM No.	RATING RESISTANCE	RATING WATTS	Columbia PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R2A	2meg	½	9A599	B-76		Q13-139	† UE1874	Treble, Left Chan.
B	2meg	½		SR-76		M13-139		Treble, Right Chan.
R3A	2meg	½	9A599	B-76		Q13-139	† UE1874	Bass, Left Chan.
B	2meg	½		SR-76		M13-139		Bass, Right Chan.
R4A	100K	½	9A600	B-40	A47-100K-S	Q11-128	U41	Balance
B	Shaft	½		Not Req.	KSS-3	Not Req.	Not Req.	

Note 1. Model 682 uses 2 meg dual tandem with switch, part #9A608.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Columbia PART No.	NOTES
R5	100K			
R6	10meg			
R7	27K			
R8	270K			
R9	470K			
R10	100K			
R11	10meg			
R12	270K			
R13	470K			
R14	6.8meg			
R15	100K	1		
R16	100Ω			
R17	2700Ω 5%			
R18	470K			
R19	6.8meg			
R20	100K	1		
R21	100Ω			
R22	2700Ω			
R23	470K			
R24	220Ω	5	16A409	
R25	12K	1		
R26	15K 5%	1		
R27	220Ω	5	16A409	
R28	220Ω	5	16A409	
R29	68Ω			
R30	68Ω			

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	Columbia PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V Ⓐ .41A	120V Ⓐ .2A	6.3V Ⓐ 1.5A	2A102						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	Columbia PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6500Ω CT	6-8Ω CT	3A234							
T3	2300Ω	1-2Ω	3A235							

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	Columbia PART No.	QUAM PART No.	NOTES
SP1	8"	PM	3-4Ω	1A107	8A21	Model 642
SP2	4"	PM	3-4Ω	1A122	4A1	Model 642 & 682
SP3	4"	PM	3-4Ω	1A122	4A1	Model 642 & 682
	10"	PM	3-4Ω	1A123	10A6A	Model 682

PARTS LIST AND DESCRIPTIONS (Continued)

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA Columbia PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.065	10A611	1101A ① ③	RS100A ① ③	100A ① ③ M150 ② ③		① Selenium Type ② Silicon Type ③ Two Required
M2	.065	10A612	1101A ① ③	RS100A ① ③	100A ① ③ M150 ② ③		

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA Columbia PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	REMARKS
M3		13-TB*				* Includes needle & mounting mechanism

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA Columbia PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M4		S69X † S69XSD †♦ S69XDD ♦♦	*W-103STSS † *W-103STDS ♦†	* Includes cartridge † Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	Columbia PART No.	NOTES
M5	Switch	19A625	Slide Type, DPDT (Model 642 only)

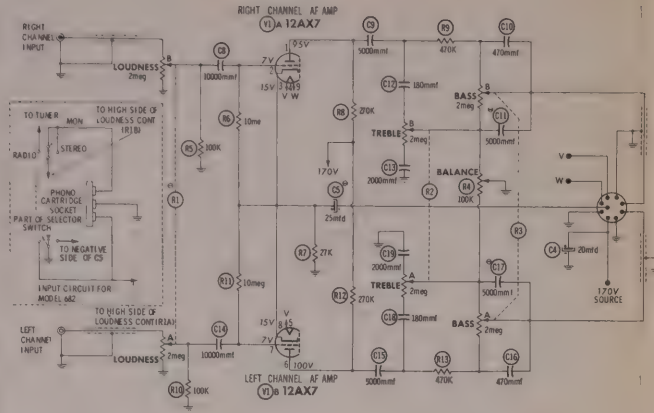
CABINETS & CABINET PARTS

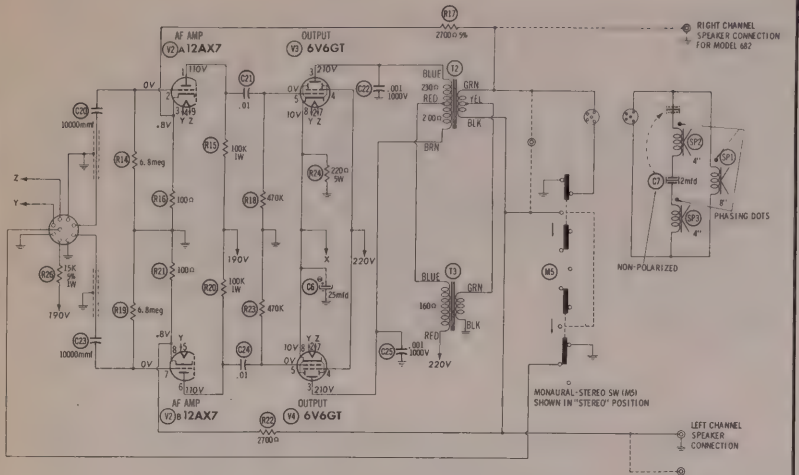
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

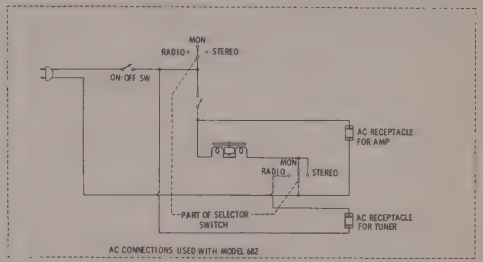
NAME	PART NO.	DESCRIPTION
Knob	8A477	Models 642, 682
Cabinet	17A972	Mahogany, Model 642
Cabinet	17A973	Limed Oak, Model 642
Cabinet	17A974	Walnut, Model 642
Cabinet	17A975	Mahogany, Model 682
Cabinet	17A976	Blonde, Model 682
Cabinet	17A977	Walnut, Model 682

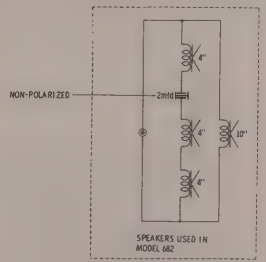
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No.	8401
Phono Pick-up Arm Cable	Use BELDEN No.	8430 (Two Conductor - Twisted)









1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

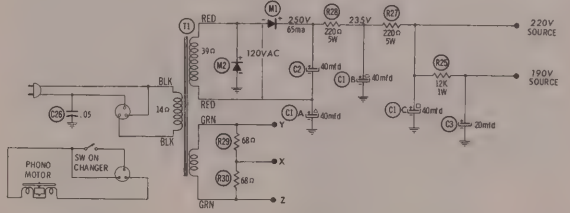
RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	↑300K	10meg	27K	130Ω	130Ω	↑300K	10meg	27K	130Ω
V2	12AX7	↑110K	6.8meg	100Ω	130Ω	130Ω	↑110K	6.8meg	100Ω	130Ω
V3	6V6GT	NC	130Ω	↑830Ω	↑440Ω	470K	NC	130Ω	100Ω	
V4	6V6GT	NC	130Ω	↑800Ω	↑440Ω	470K	TP	130Ω	100Ω	

* MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION
TP TIE POINT

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM



A PHOTOFACT STANDARD NOTATION SCHEMATIC
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COLUMBIA RECORDS
MODELS 642, 682

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

DEWALD MODEL M-1200

DEWALD MODEL M-1200

DEWALD MODEL M-1200

TRADE NAME	DeWald Model M-1200		
MANUFACTURER	DeWald Radio Mfg. Corp., 35-15 37th Ave., Long Island City 1, N. Y.		
TYPE SET	AC Operated 10 Tube Stereo Amplifier		
POWER SUPPLY	105-125 Volts AC, 60 Cycles	RATING	110 Watts, 1.05 Amp. @ 117 Volts AC

SET 451 FOLDER 6

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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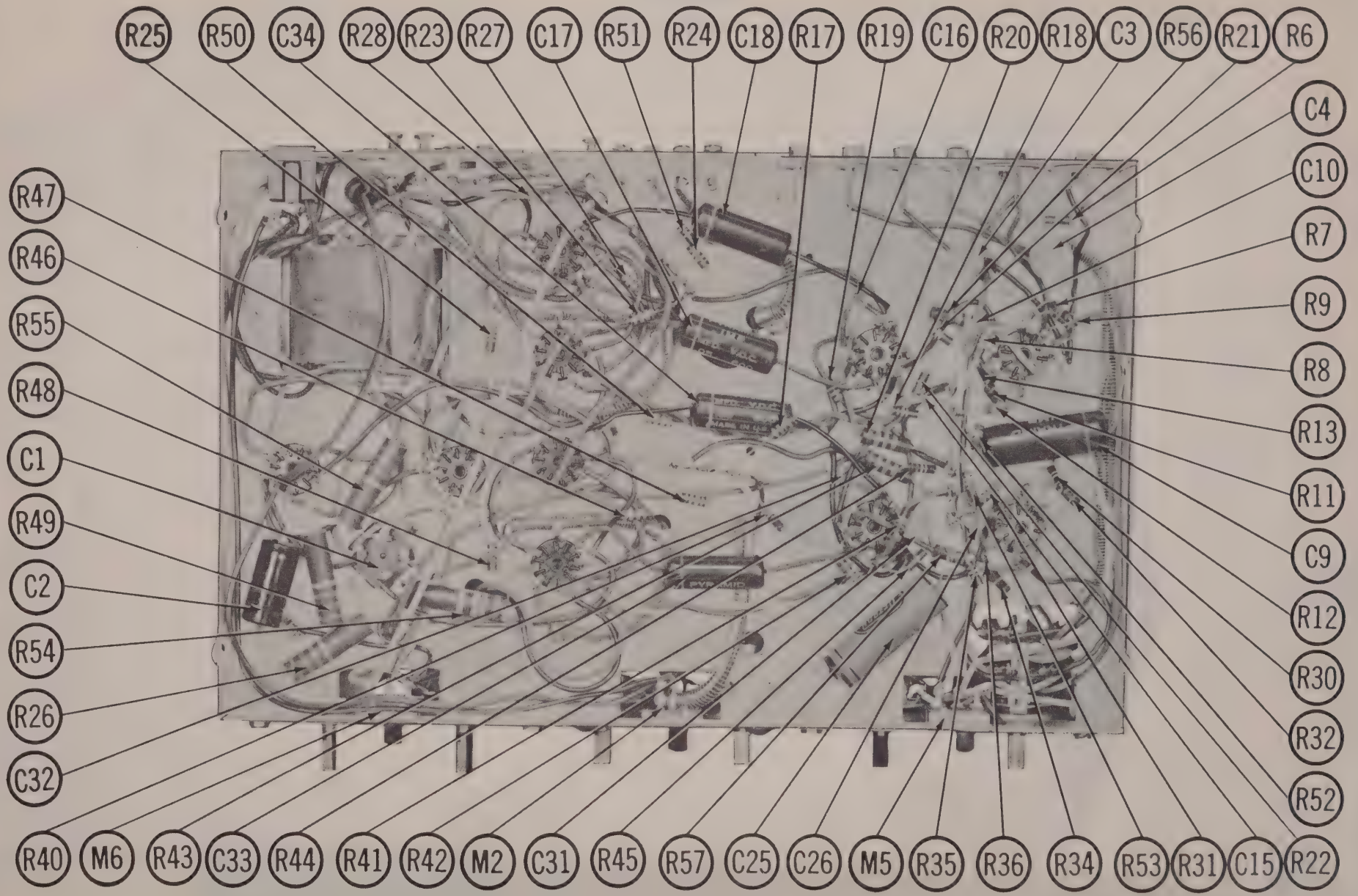


CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	Channel A Preamp.	ECC83/12AX7
V2	Channel A AF Amp. - Channel A Phase Inv.	ECC83/12AX7
V3	Channel A Output	EL84/6BQ5
V4	Channel A Output	EL84/6BQ5
V5	Channel B Preamp.	ECC83/12AX7
V6	Channel B AF Amp. - Channel B Phase Inv.	ECC83/12AX7
V7	Channel B Output	EL84/6BQ5
V8	Channel B Output	EL84/6BQ5
V9	Rectifier	EZ80
V10	Rectifier	EZ80

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA DEWALD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲20	350	E212-5	AFHS4-56-05			TMT-39	TVLS-4621.8*	
B	■40	350					TD-100-25		
C	▲40	350							
D	100	25							
C2	100	25		PRS25V100	BR1005	TC2501	TD-100-25	TVA-1207	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

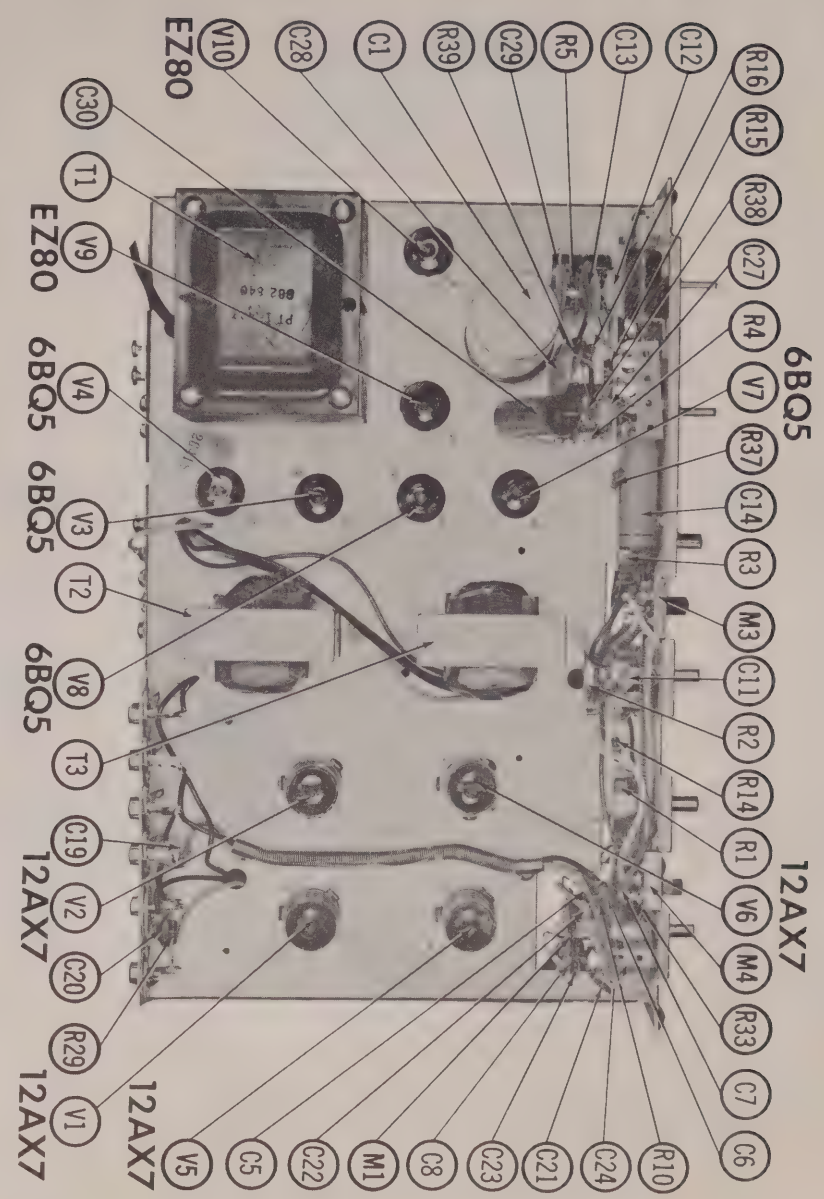
ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA DEWALD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	120		N750		N750-DI 120	DTN-120	C10T12U	CN7-312	5TCU-T12S *	
C4	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C5	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C6	120		N750		N750-DI 120	DTN-120	C10T12U	CN7-312	5TCU-T12S *	
C7	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C8	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C9	. 25	400			P488N-25		CUB4P25	GEM-4025	4TM-P25	
C10	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C11	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C12	20000				BPD-02	DD-203	BYV6S2	B-120	5HK-S2	
C13	20000				BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C14	. 5	200			P288N-5		CUB2P5	GEM-205	2TM-P5	
C15	100		N750		N750-DI 100	DTN-100	C10T1U	CN7-310	5TCU-T1	
C16	220		10%		DI-220	MD-221	L10T22	JL-322	6TM-T25	
C17	. 05	600			P688N-05	DF-503	CUB6S5	GEM-615	6TM-S5	
C18	. 05	600			P688N-05	DF-503	CUB6S5	GEM-615	6TM-S5	
C19	120		N750		N750-DI 120	DTN-120	C10T12U	CN7-312	5TCU-T12S *	
C20	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C21	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C22	120		N750		N750-DI 120	DTN-120	C10T12U	CN7-312	5TCU-T12S *	
C23	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C24	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C25	. 25	400			P488N-25		CUB4P25	GEM-4025	4TM-P25	
C26	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C27	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C28	20000				BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C29	20000				BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C30	. 5	200			P288N-5		CUB2P5	GEM-205	2TM-P5	
C31	100		N750		N750-DI 100	DTN-100	C10T1U	CN7-310	5TCU-T1	
C32	220		10%		DI-220	MD-221	L10T22	JL-322	6TM-T25	
C33	. 05	600			P688N-05	DF-503	CUB6S5	GEM-605	6TM-S5	
C34	. 05	600			P688N-05	DF-503	CUB6S5	GEM-605	6TM-S5	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DEWALD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	V-318-4	BT-72	A47F-1meg-Z	Q13-137X	UT-440	Loudness, Chan. A, Tap ②
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	160K

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS (cont)

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DEWALD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R2A	1meg	1/2	V-319-2	B-70	AD47-1meg	Q13-137	†	Master Stereo, Channel A
B	1meg	1/2		SR-70	Not Req.	M13-137		Master Stereo, Channel B
C	Shaft			Not Req.	FS-3	Not Req.		
R3A	1meg	1/2	V-318-4	BT-72	A47F-1meg-Z	Q13-137X	UT-440	Loudness, Chan. B, Tap ⓐ 160K
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	25K	1/2	V-320-1					Treble, Channel A
B	25K	1/2						Treble, Channel B
R5A	250K	1/2	V-320-2	B-51		Q13-130	‡	Bass, Channel A
B	250K	1/2		SR-51		M13-130	UE4001	Bass, Channel B
C	Shaft			Not Req.		Not Req.		

† "STA-LOC" Equivalent: FA16A, RU16A, CS3500. ‡ "STA-LOC" Equivalent: FA254A, RU254A, OF1062, IS1687.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		DEWALD PART No.	NOTES
	OHMS	WATT		
R6	10K			
R7	100K			
R8	470K			
R9	820Ω			
R10	220K			
R11	1meg			
R12	270K			
R13	1500Ω			
R14	68K			
R15	3300Ω			
R16	6800Ω			
R17	47K			
R18	270K			
R19	390Ω			
R20	56K	1		
R21	270K			
R22	1500Ω			
R23	390K			
R24	180K			
R25	470Ω			
R26	150Ω	2		
R27	390K			
R28	3300Ω			
R29	10K			
R30	100K			
R31	470K			

ITEM No.	RATING		DEWALD PART No.	NOTES
	OHMS	WATT		
R32	820Ω			
R33	220K			
R34	1meg			
R35	270K			
R36	1500Ω			
R37	68K			
R38	3300Ω			
R39	6800Ω			
R40	47K			
R41	270K			
R42	390Ω			
R43	56K	1		
R44	270Ω			
R45	1500Ω			
R46	390K			
R47	180K			
R48	470Ω			
R49	150Ω	2		
R50	390K			
R51	3300Ω			
R52	270K			
R53	270K			
R54	13K	2	Note 1	
R55	2200Ω	2		
R56	4.7Ω			
R57	4.7Ω			

Note 1. Some versions may use 18K 1W in this application.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	DEWALD PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ 1.05A	600VCT ⓐ .150A	6.3VCT ⓐ 2.1A	PT-164A-3						
	SEC. 3	SEC. 4	SEC. 5							
	6.3VCT ⓐ 2.3A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	DEWALD PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5800Ω CT	32Ω Taps ⓐ 16Ω, 8Ω	T165B	24S55	A-2904①	AU-609	A-3870	24S55	S-55X	① Drill new mounting hole
T3	5800Ω CT	32Ω Taps ⓐ 16Ω, 8Ω	T165B	24S55	A-2904①	AU-609	A-3870	24S55	S-55X	

MISCELLANEOUS

ITEM No.	PART NAME	DEWALD PART No.	NOTES
M1	Switch	RS-830-4	Selector (Rotary Type)
M2	Switch		Power Off-On (Slide Type, DPDT)
M3	Switch		Stereo-Monaural (Slide Type, SPDT)
M4	Switch		Amp. Input or Reverse (Slide Type, DPDT)
M5	Switch		Monitor-Tape (Slide Type, DPDT)
M6	Switch		Spk'r Phase (Slide Type, DPDT)

CABINETS & CABINET PARTS

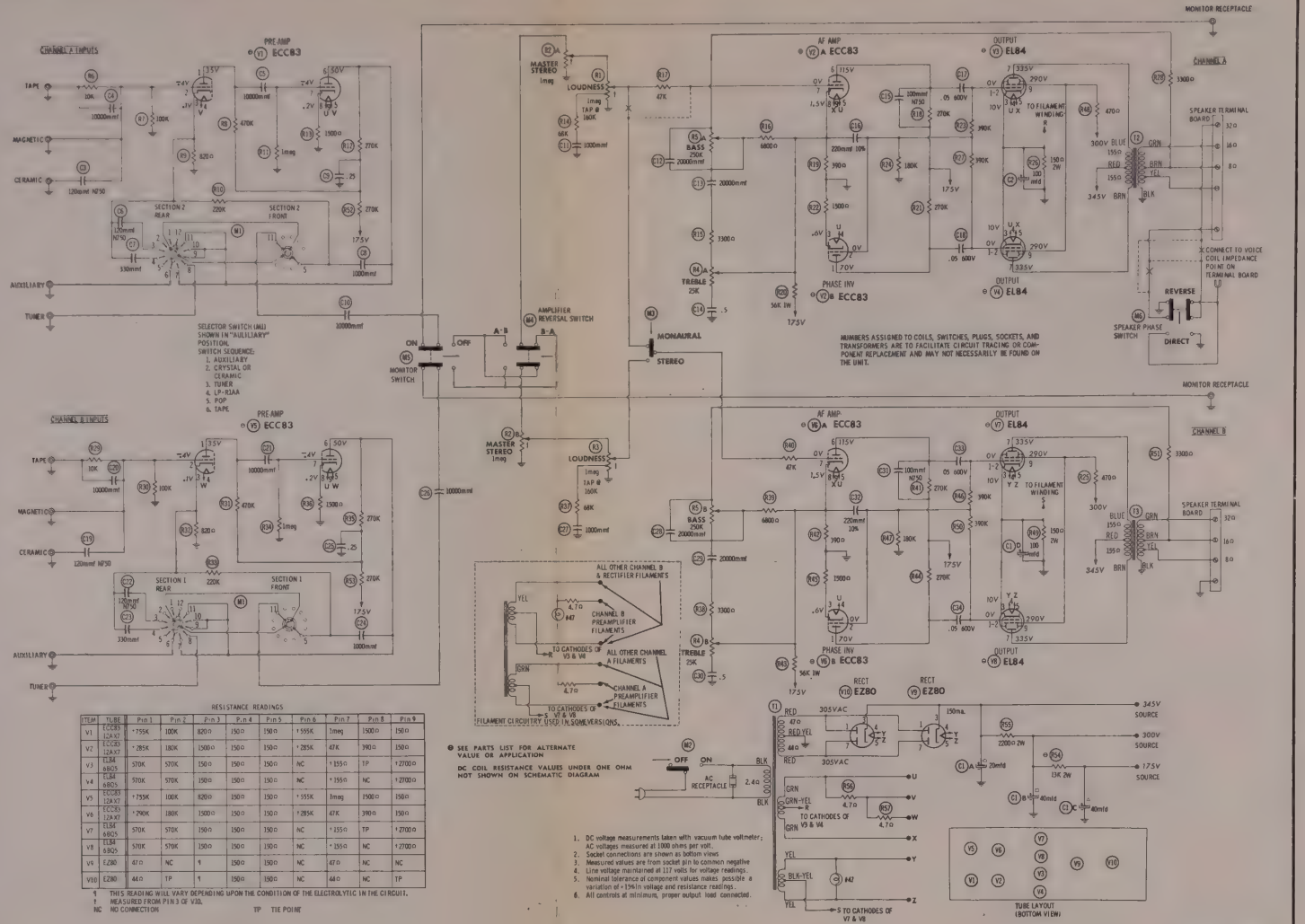
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	K484-6	Selector, Control
Knob	K484-4	Large Outer, Tone
Knob	K484-2	Small Inner, Tone

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83 12AX7	†755K	100K	820Ω	150Ω	150Ω	†555K	1meg	1500Ω	150Ω
V2	ECC83 12AX7	†285K	180K	1500Ω	150Ω	150Ω	†285K	47K	390Ω	150Ω
V3	EL84 6BQ5	570K	570K	150Ω	150Ω	150Ω	NC	†155Ω	TP	†2700Ω
V4	EL84 6BQ5	570K	570K	150Ω	150Ω	150Ω	NC	†155Ω	NC	†2700Ω
V5	ECC83 12AX7	†755K	100K	820Ω	150Ω	150Ω	†555K	1meg	1500Ω	150Ω
V6	ECC83 12AX7	†290K	180K	1500Ω	150Ω	150Ω	†285K	47K	390Ω	150Ω
V7	EL84 6BQ5	570K	570K	150Ω	150Ω	150Ω	NC	†155Ω	TP	†2700Ω
V8	EL84 6BQ5	570K	570K	150Ω	150Ω	150Ω	NC	†155Ω	NC	†2700Ω
V9	EZ80	47Ω	NC	¶	150Ω	150Ω	NC	47Ω	NC	NC
V10	EZ80	44Ω	TP	¶	150Ω	150Ω	NC	44Ω	NC	TP

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V10.
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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DEWALD MODEL M-1200

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

GENERAL ELECTRIC
MODEL A1-320

GENERAL ELECTRIC
MODEL A1-320

GENERAL ELECTRIC
MODEL A1-320

TRADE NAME	General Electric Model A1-320
MANUFACTURER	General Electric Co., Specialty Electronic Components Dept., W. Genesee St., Auburn, N. Y.
TYPE SET	AC Operated 7 Tube Audio Amplifier With Preamplifier
POWER SUPPLY	105-120 Volts AC. 60 Cycles RATING 120 Watts, 1.15 Amp. @117 Volts AC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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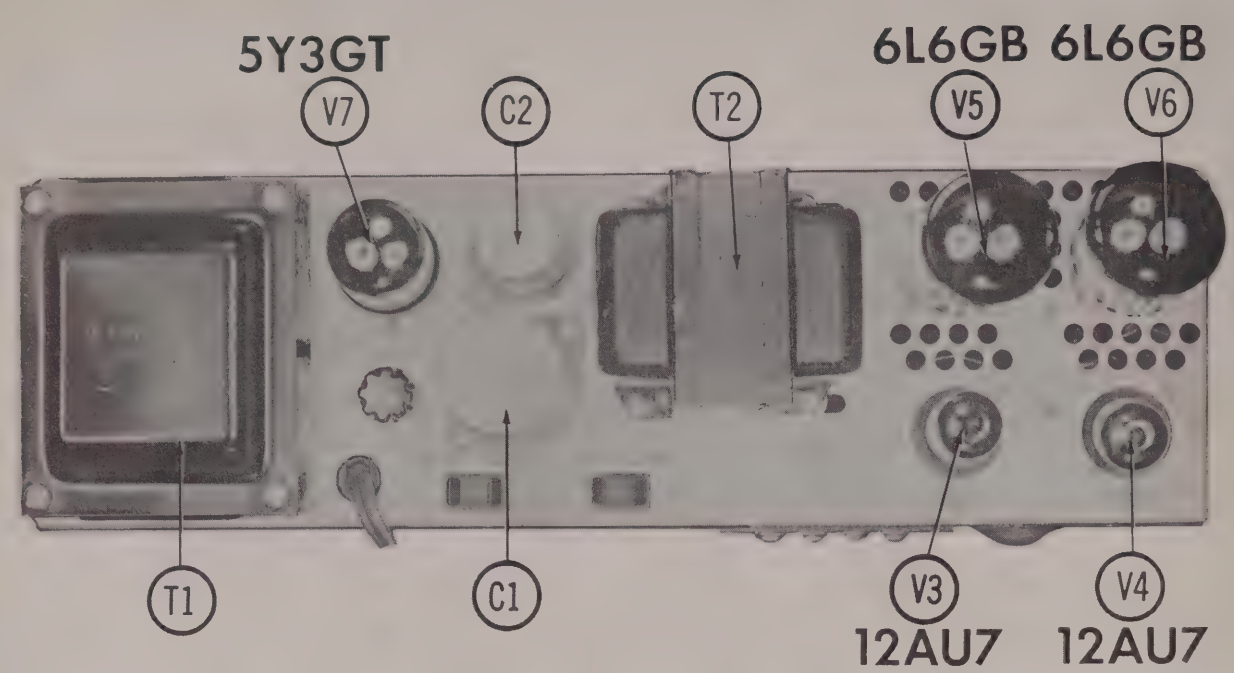
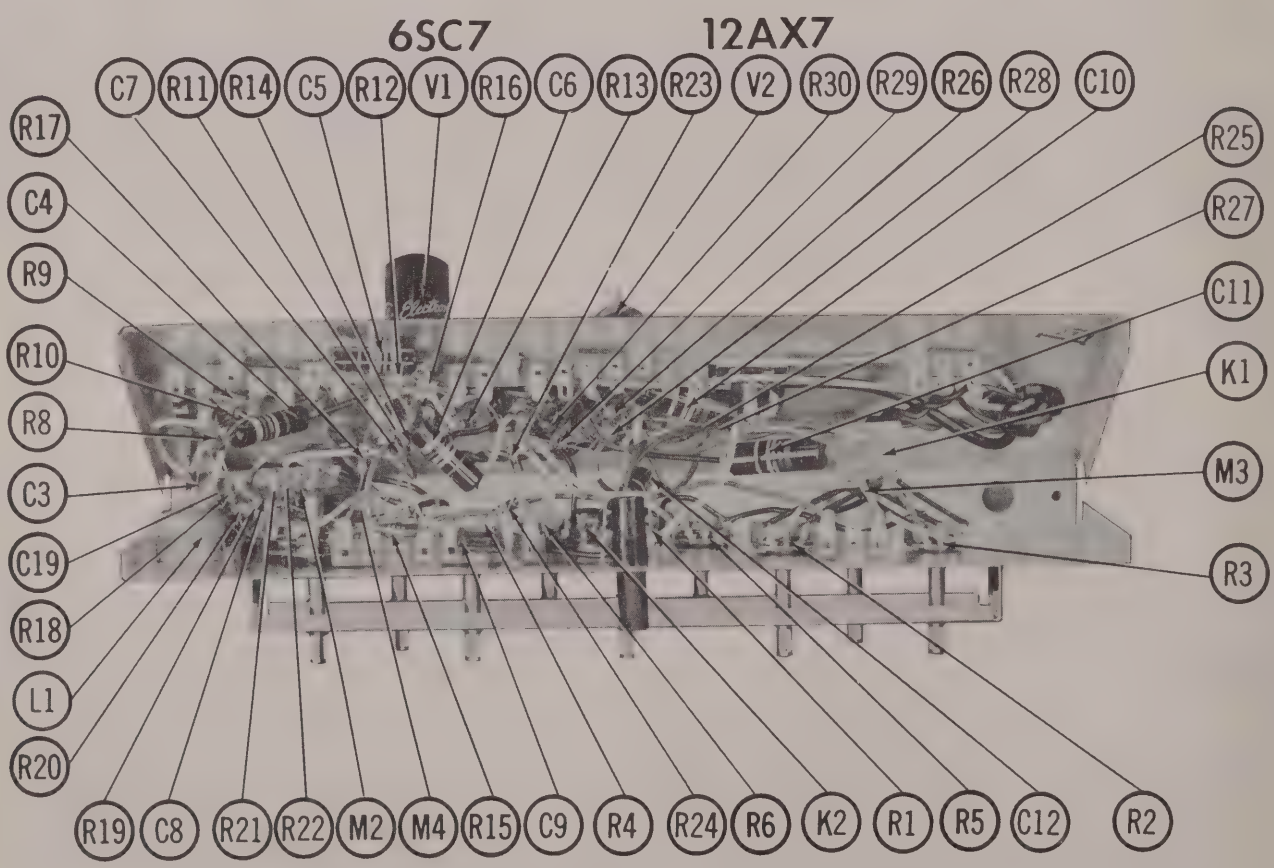


AMP CHASSIS - TOP VIEW



PREAMP CHASSIS - BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Phono Preamp.	6SC7	
V2	AF Amplifier	12AX7	
V3	AF Amp. -Phase Inv.	12AU7	①
V4	Driver	12AU7	

ITEM No.	USE	TYPE	NOTES
V5	Output	6L6GB	
V6	Output	6L6GB	
V7	Rectifier	5Y3GT	

①Early versions use 12AX7

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	G.E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	■40	450	ECE-288	AFH4-93	D0920	FP428.4	TMQ79	TVL-4720	
B	▲40	450							
C	▲30	350							
D	30	350							
C2A	■5	350	ECE-229	AFH3-177-60	C0740	FP223		TVL-2610	
B	▲100	50							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	G.E. PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	2	50		ECC-138	P92ZN-2.0		WMF1W2E			
C4	.047	200	10%				PM2S47	GTM-2147	2TM-S47	
C5	.047	200	10%				PM2S47	GTM-2147	2TM-S47	
C6	.047	200	10%				PM2S47	GTM-2147	2TM-S47	
C7	750		5%	ECU-313	1464-00075		1R5T75		MS-375	
C8	10000			ECW-3168	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C9	1000		10%	ECW-3099	1464-001		1R5D1	MCB255	MS-21	
C10	.1	400	10%				PM4P1	GTM-401	4TM-P1	
C11	.1	400	10%				PM4P1	GTM-401	4TM-P1	
C12	.022	400	10%				PM4S22	GTM-4122	4TM-S22	
C13	100			UCG-028	1469-0001	DD-101	22R5T1	MC235	MS-31	
C14	.1	400	10%				PM4P1	GTM-401	4TM-P1	
C15	.1	400	10%				PM4P1	GTM-401	4TM-P1	
C16	.047	200	10%				PM2S47	GTM-2147	2TM-S47	
C17	.047	200	10%				PM2S47	GTM-2147	2TM-S47	
C18	10		5%	UCG-2004	1469-00001	DD-100	22R5Q1	MCE215	MS-41	
C19	2000		5%	ECG-016	1464-002		1R5D2	MCE457	MS-22	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	G E PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	500K	½	ERC-358	BT-160		Q18-133XX	UDT-283	Loudness, Taps@120K & 350K
R2A	1meg	½	ERC-355	B-69	A47-1meg-S	Q11-137	U54	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	500K	½	ERC-356	BT-65	A47F5-500K	Q19-133X	UT-431	Treble, Tap@250K
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R4A	1meg	½	ERC-354	B-70	A47-1meg-Z	Q13-137	U53	Level
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R5A	500K	½	ERC-357	B-60	A47-500K-Z	Q13-133	U48	Aux. 1
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
R6A	500K	½	ERC-357	B-60	A47-500K-Z	Q13-133	U48	Radio
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
R7A	100Ω	1(ww)	ERC-231	WN-101	A43-100	W11-084	C100R	Hum
B	Shaft			Not Req.	FKS-1/4	SK-5	Not Req.	

AMP CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	G. E. PART No.	NOTES
R8	100K			
R9	510Ω 5%			
R10	100K			
R11	3.3meg			
R12	270K			
R13	3.3meg			
R14	470K			
R15	470K			
R16	270K			
R17	2.7meg 5%			
R18	10meg			
R19	62K 5%			
R20	24K 5%			
R21	20K 5%			
R22	15K 5%			
R23	10K 5%			
R24	100K			
R25	2.2meg5%			
R26	100K			
R27	680Ω			
R28	470K			
R29	470K			
R30	3000Ω 5%			
R31	470K			
R32	100K	1		
R33	1600Ω 5%			
R34	22K			
R35	27K 5%	2		Note 1
R36	24K 5%			
R37	1meg			
R38	20K 5%			
R39	1500Ω			
R40	1meg			
R41	20K 5%			
R42	150K			
R43	1000Ω			
R44	250Ω	5	ERW-071	
R45	150K			
R46	1000Ω			
R47	20K 5%			
R48	120K			
R49	10K	2		
R50	25K	5	ERW-141	
R51	7500Ω	2	ERW-142	

Note 1. Some versions may use 24K 2W 5% in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA G.E. PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ 1.15A	800 VCT ⓐ .140A	5V ⓐ 2A	ETP-332						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V ⓐ 3A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA G.E. PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	7200Ω CT	16Ω Taps ⓐ 8Ω, 4Ω	ETO-185	22S68 ①	A-3128		A-3307	22S68 ①	S-60A	① Drill new mounting holes

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA G.E. PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Rumble Filter Choke	ELX-049						2.25H

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	G.E. PART No.	REPLACEMENT DATA
K1	Tone Comp.	100mmf, 4700mmf, 4700mmf, 1000Ω, 100K, 100K, 470K	EEK-008	Centralab PC-190 Sprague TC-1
K2	Loudness Comp.	100mmf, 200mmf, 4500mmf, 4500mmf, 50K, 50K	EEK-009	Centralab PC-324 Sprague TC-4

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA G.E. PART No. FUSE	G.E. PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	MTH	5A 250V		EJW-004	312005, (5A 250V)	342012	MTH5	HKP

MISCELLANEOUS

ITEM No.	PART NAME	G.E. PART No.	NOTES
M2	Switch	ESW-113	Selector (3 Gang, 8 Position, Rotary, Wafer)
M3	Switch	ESO-001	Off-On
M4	Switch	ESO-001	Rumble Filter

CABINETS & CABINET PARTS

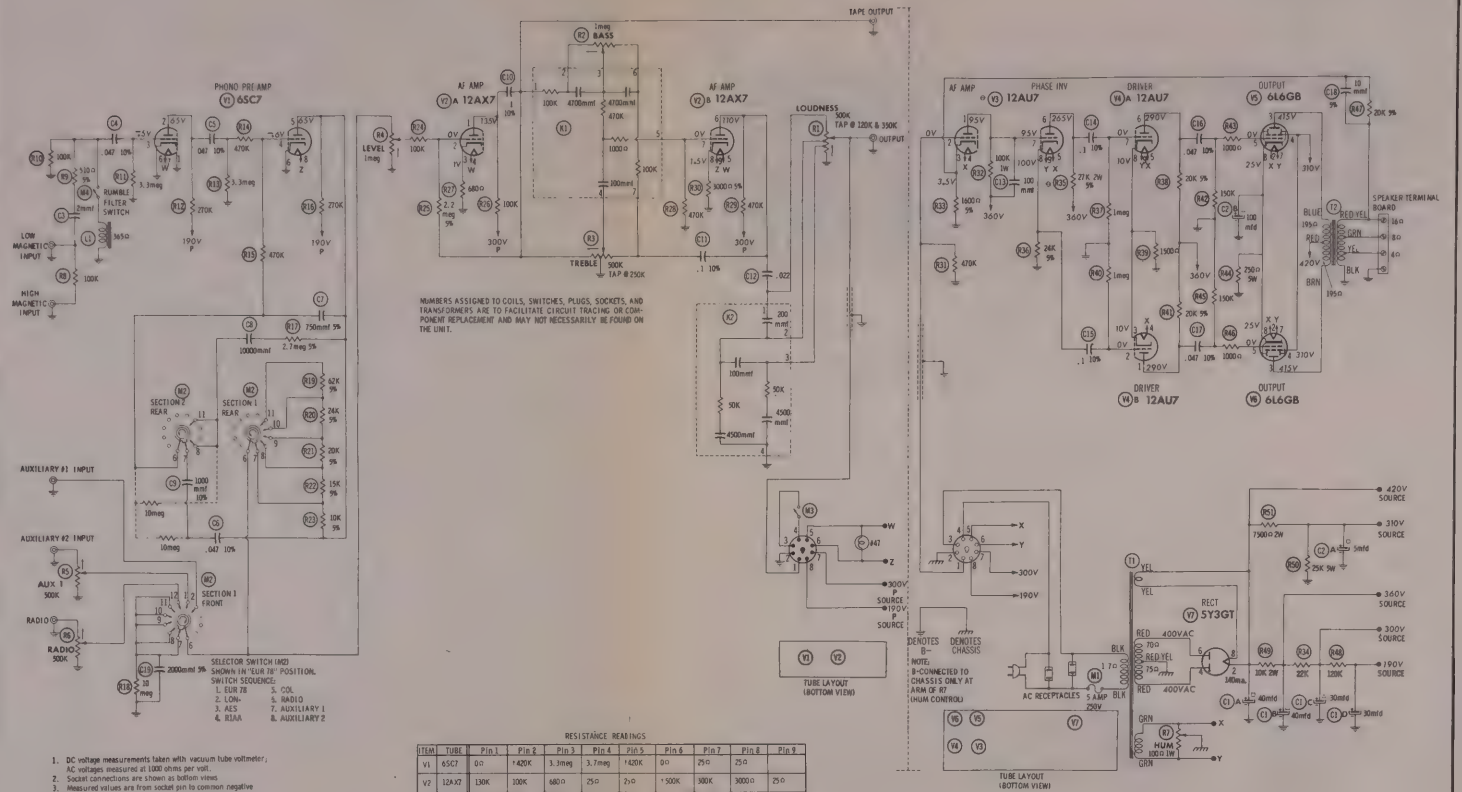
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	EDK-545	Large Black, With Dot
Knob	EDK-546	Small Black, With Dot
Cabinet	EAV-1005	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6SC7	0Ω	†420K	3.3meg	3.7meg	†420K	0Ω	25Ω	25Ω	
V2	12AX7	130K	100K	680Ω	25Ω	2Ω	†500K	300K	3000Ω	25Ω
V3	12AU7	†110K	0Ω	1600Ω	25Ω	2Ω	†37K	†110K	26K	25Ω
V4	12AU7	†30K	1meg	1500Ω	25Ω	2Ω	†30K	1meg	1500Ω	25Ω
V5	6L6GB	TP	25Ω	†195Ω	†7500Ω	150K	TP	25Ω	250Ω	
V6	6L6GB	TP	25Ω	†195Ω	†7500Ω	150K	TP	25Ω	250Ω	
V7	5Y3GT	NC	¶	NC	75Ω	NC	700Ω	NC	¶	

B THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
1 MEASURED FROM PIN 2 OF V7
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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GENERAL ELECTRIC MODEL A1-320

PHOTOFACT* Folder
with CIRCUITRACE*

GENERAL ELECTRIC MODEL T135A

GENERAL ELECTRIC
MODEL T135A

GENERAL ELECTRIC
MODEL T135A

TRADE NAME	General Electric Model T135A		
MANUFACTURER	General Electric Co., Products Service, Radio Receiver Dept., 869 Broad St., Utica, N. Y.		
TYPE SET	AC-DC Operated 7 Tube FM-AM Receiver		
POWER SUPPLY	105-120 Volts AC-DC	RATING	28 Watts, .31 Amp. @117 Volts AC
TUNING RANGE – BROADCAST	530-1620KC	FREQ. MOD.	88-108MC

DISASSEMBLY

1. Remove volume & tone knobs by pulling off.
2. Turn FM-AM Selector knob 90° counterclockwise and move to center of slot.
3. Remove 2 screws from cabinet back. Remove back.
4. Remove 3 screws from cabinet bottom.
5. Remove chassis from cabinet. Tuning knobs are captive and remain with cabinet.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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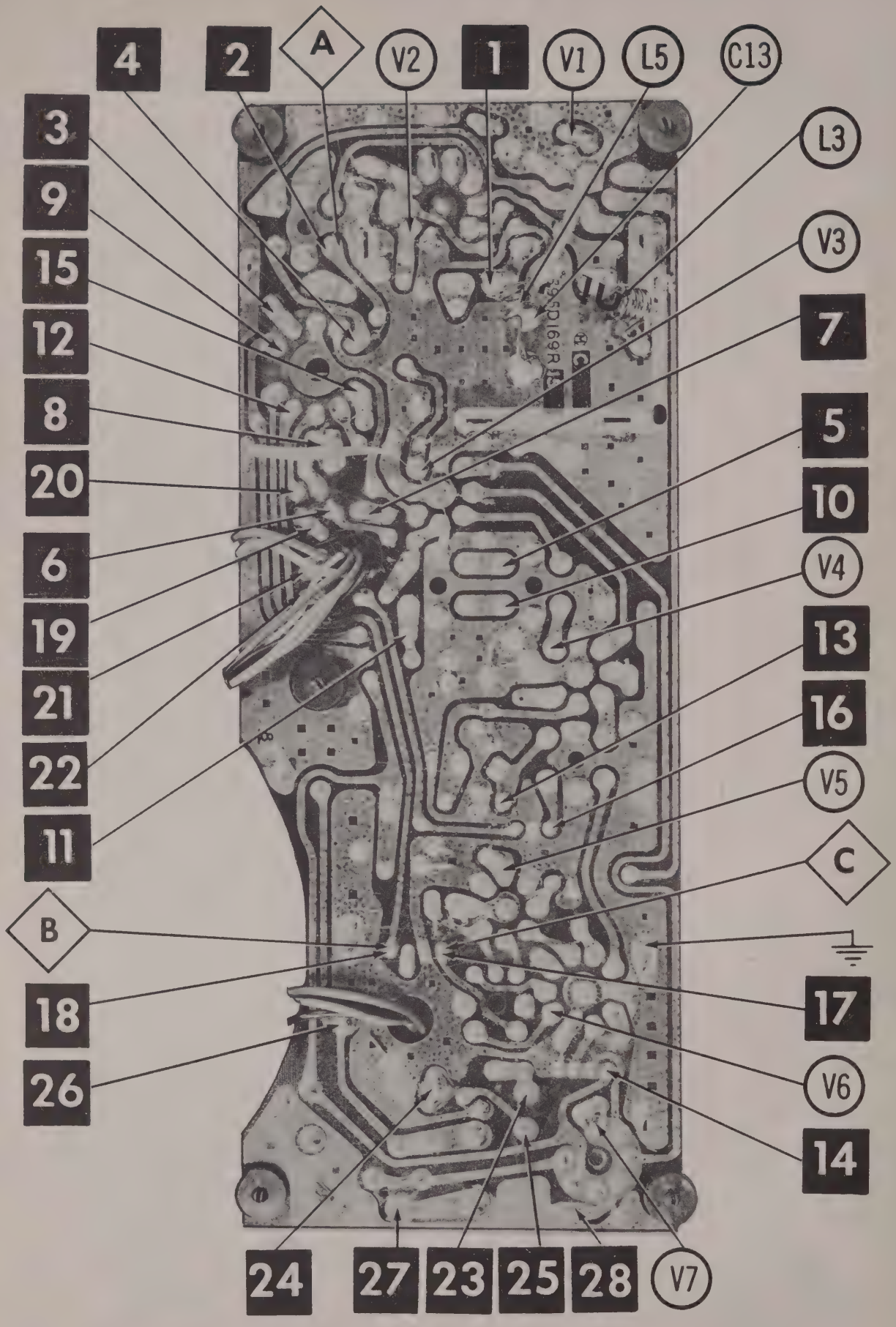
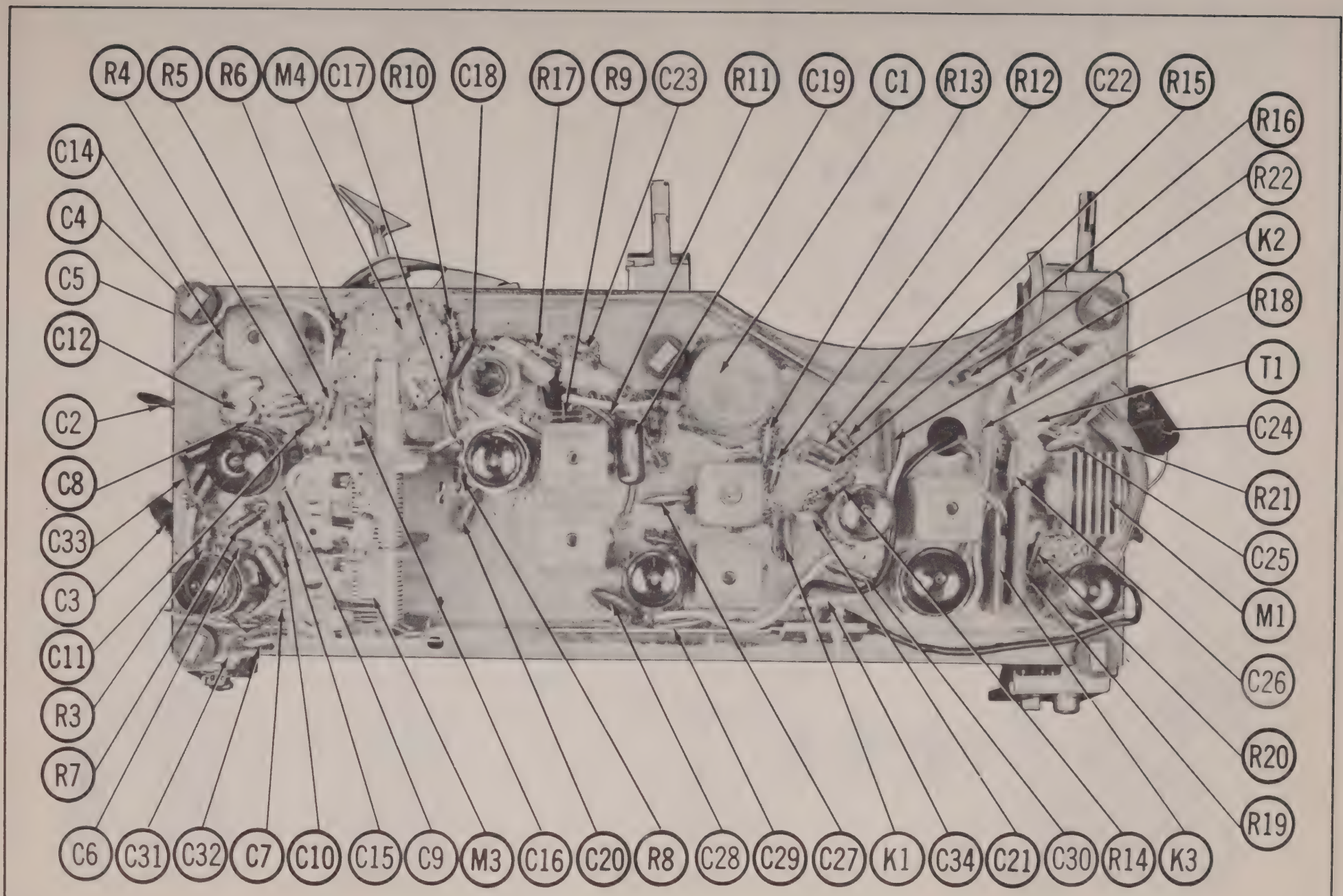


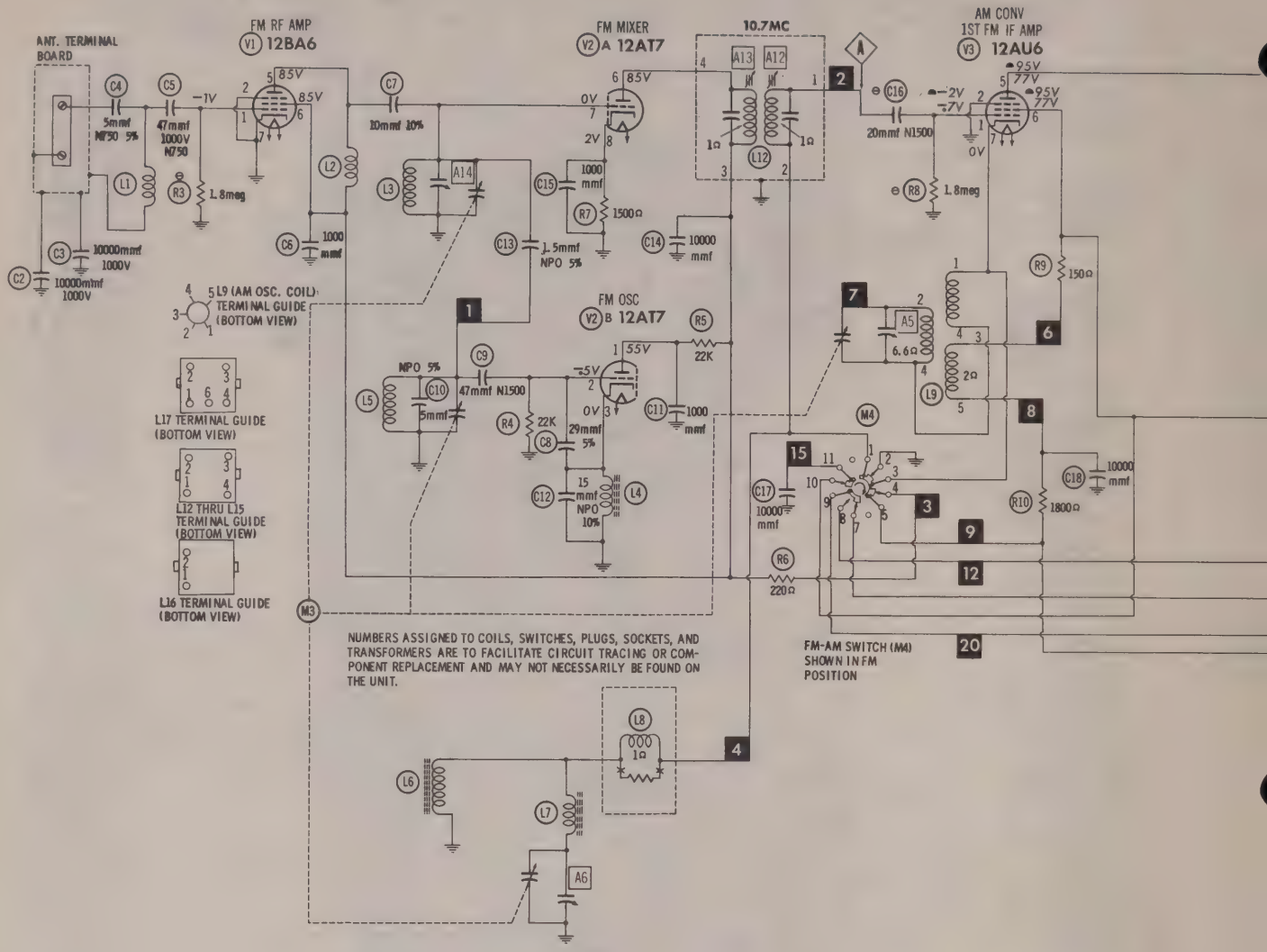
A Howard W. Sams CIRCUITRACE* Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



CHASSIS TOP VIEW — CAPACITOR, RESISTOR & MISC. IDENT.


ANT. TERMINAL BOARD
FM RF AMP
V1 12BA6
FM MIXER
V2A 12AT7
10.7MC
AM CONV
1ST FM IF AMP
V3 12AU6
FM OSC
V2B 12AT7
L9 (AM OSC. COIL) TERMINAL GUIDE (BOTTOM VIEW)
L17 TERMINAL GUIDE (BOTTOM VIEW)
L12 THRU L15 TERMINAL GUIDE (BOTTOM VIEW)
L16 TERMINAL GUIDE (BOTTOM VIEW)
FM-AM SWITCH (M4) SHOWN IN FM POSITION
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	1.8meg	0Ω	12Ω	24Ω	†1200Ω	†1200Ω	0Ω		
V2	12AT7	†23K	22K	.1Ω	.1Ω	12Ω	†1200Ω	.1Ω	1500Ω	NC
V3	12AU6	1.8meg	0Ω	79Ω	67Ω	†2900Ω	†2900Ω	.1Ω		
V4	12BA6	2.2meg	0Ω	67Ω	55Ω	†1700Ω	†1700Ω	0Ω		
V5	12AU6	100K	0Ω	55Ω	43Ω	†16K	†16K	150Ω		
V6	19T8	100K	100K	200K	43Ω	24Ω	370K	0Ω	6.8meg	†470K
V7	35C5	150Ω	470K	79Ω	115Ω	470K	†1000Ω	†225Ω		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
† MEASURED FROM OUTPUT OF M1.
▲ MEASURED IN "AM" POSITION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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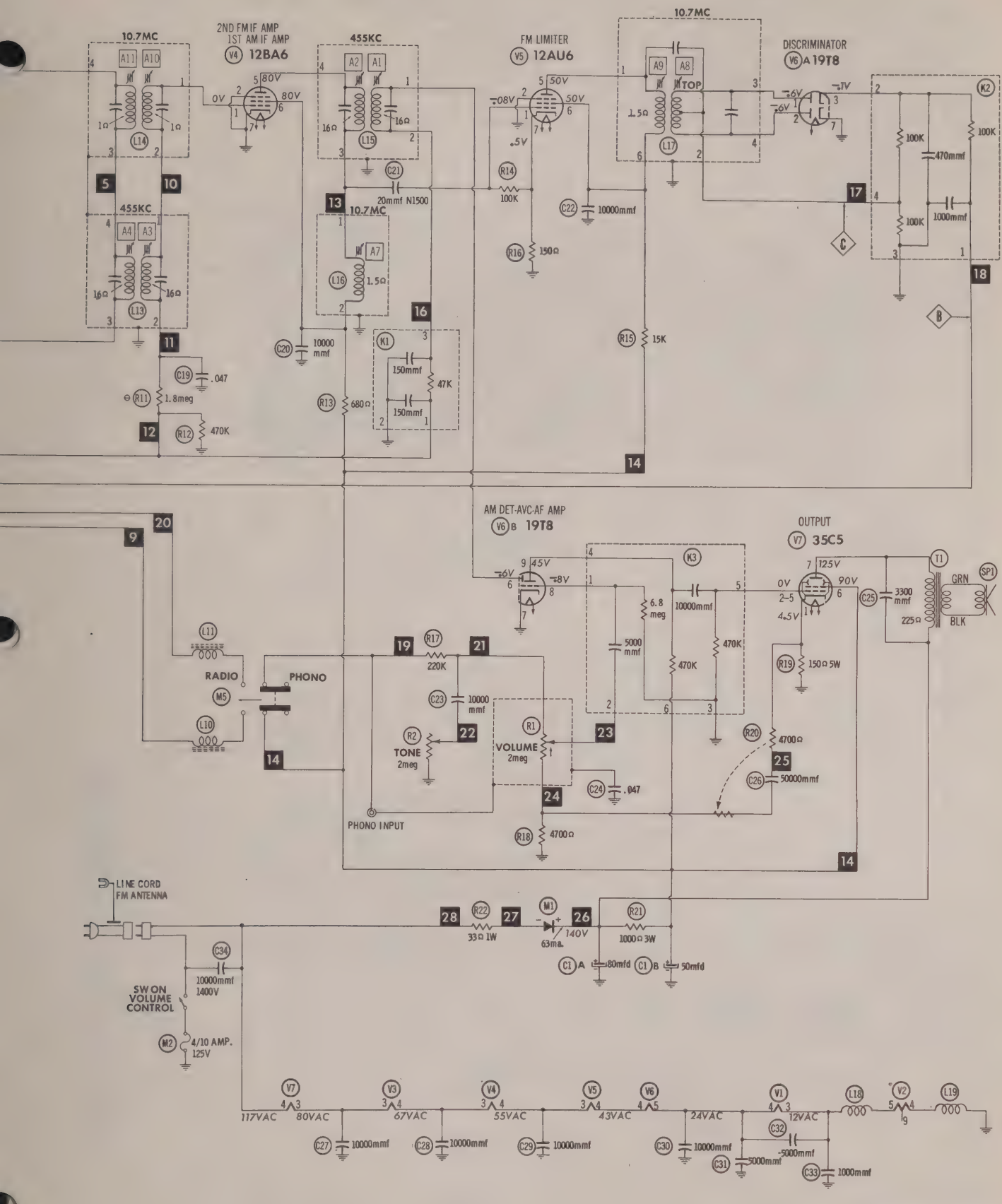


GENERAL ELECTRIC
MODEL T135A

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools: A1 thru A4, A7 thru A14..... GENERAL CEMENT #8282, 8606, 8606L, 9091
WALSCO #2526, 2541, 2543, 2544

A5, A6, A15..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05mfd	High side to pin 1 (grid) of 12BA6 (V4). Low side to chassis.	455KC (400∿ Mod.)	AM	Tuning gang fully closed.	Across speaker voice coil	A1, A2	Adjust for maximum output.
2.	"	High side to point (A). Low side to chassis.	"	"	"	"	A3, A4	Adjust for maximum output. Repeat Steps 1 and 2.
3.		Loop	1620KC	"	Tuning gang fully open.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	1500KC	"	1500KC	"	A6	Adjust for maximum output. Repeat Steps 1 thru 4.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.01mfd	High side to pin 1 (grid) of 12BA6 (V4). Low side to chassis.	10.7MC (Unmod.)	FM	Tuning gang fully closed.	DC probe thru 500K to pin 1 (grid) of 12AU6 (V5). Common to chassis.	A7	Adjust for maximum deflection.
6.	"	"	"	"	"	DC probe thru 500K to point (B). Common to chassis.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
7.	"	"	"	"	"	DC probe thru 500K to point (C). Common to chassis.	A9	Adjust for maximum deflection.
8.	"	High side to point (A). Low side to chassis.	"	"	"	DC probe thru 500K to pin 1 (grid) of 12AU6 (V5). Common to chassis.	A10, A11	"
9.	"	High side to pin 1 (grid) of 12BA6 (V1). Low side to chassis.	"	"	"	"	A12, A13	Adjust for maximum deflection. Repeat Steps 5 thru 9.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	.01mfd.	High side to pin 1 (grid) of 12BA6 (V4). Low side to chassis.	10.7MC (450KC Swp)	FM	Tuning gang fully closed.	Vert. amp. thru 500K to pin 1 (grid) of 12AU6 (V5). Low side to chassis.	A7	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1
6.	"	"	"	"	"	Vert. amp. thru 500K to point (B). Low side to chassis.	A8, A9	Adjust A8 so that 10.7MC occurs at center of crossover lines similar to Fig. 2. Adjust A9 for maximum amplitude and straightness of crossover lines.
7.	"	High side to point (A). Low side to chassis.	"	"	"	Vert. amp. thru 500K to pin 1 (grid) of 12AU6 (V5). Low side to chassis.	A10, A11	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
8.	"	High side to pin 1 (grid) of 12BA6 (V1). Low side to chassis.	"	"	"	"	A12, A13	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1. Repeat Steps 5 thru 8.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
10.	270Ω Carbon Resistor	High side to top FM antenna thru 270Ω. Low side to chassis.	98MC (Unmod.)	FM	98MC	DC probe thru 500K to pin 1 (grid) of 12AU6 (V5). Common to chassis.	A14	Adjust for maximum deflection.

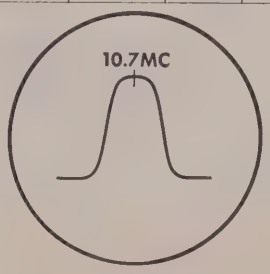


FIG. 1

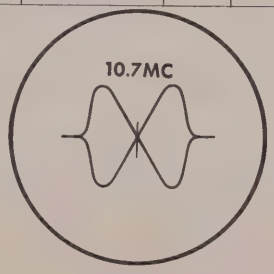


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier	12BA6	
V2	FM Mixer-FM Osc.	12AT7	
V3	1st FM IF Amp. -AM Conv.	12AU6	
V4	2nd FM-1st AM IF Amp.	12BA6	
V5	FM Limiter	12AU6	
V6	Discriminator-AM Det. - AVC -AF Amp	19T8	
V7	Output	35C5	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA G. E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	80	150	RS-1572	PRS150V8050	BBRD8515	TCD498	ATM-8050-150	VSL-2462 *	
B	50	150							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

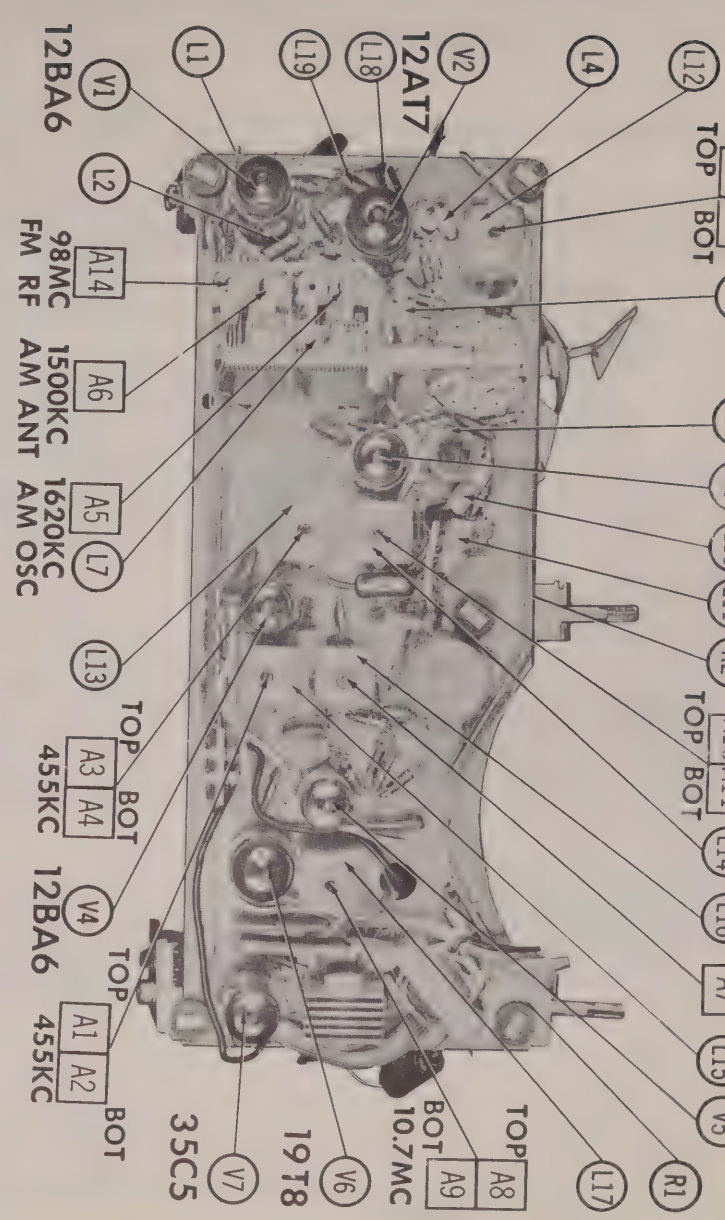
ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA G. E. PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	10000	1000		RCW-3250		DD-103	BYA10S1	B-110	5HK-S1	
C3	10000	1000		RCW-3250		DD-103	BYA10S1	B-110	5HK-S1	
C4	5		N750 5%	RS-1515		DTN-5			5TCUB-V5S 5%*	
C5	47	1000	N750	RS-1654		DTN-47	C10Q47U	CN7-447	5TCU-Q47	
C6	1000			RS-1051	BPD-001	DD-103	BYA10D1M	B- 210	5HK-D1	
C7	10		10%	RS-1216	DI-10	DTZ-10	L10Q1	CNO-410	5GA-Q10S 10%*	
C8	29		5%	RS-1517					5TCC-Q29S 5%*	
C9	47		N1500	RS-1302		TCL-47				
C10	5		NPO 5%	RS-1297					5TCCB-V5S 5%*	
C11	1000			RS-1051	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C12	15		NPO 10%	RS-1305	NPO-DI 15	DTZ-15	C10Q15C	CNO-415	5TCC-Q15S 10%*	
C13	1.5		NPO 5%	RS-1298				CNO-515	5TCCB-V15S 5%*	
C14	10000			RS-1022	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C15	1000			RS-1051	BPD-001	DD-102	BYA102	B-210	5HK-D1	
C16	20		N1500	RS-1299						①
C17	10000			RS-1022	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C18	10000			RS-1022	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C19	.047	200			P288N-047	DF-503	CUB2S47	GEM-2147	2TM-S47	
C20	10000			RS-1022	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C21	20		N1500	RS-1299						
C22	10000			RS-1022	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C23	1000			RS-1051	BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C24	.047	600			P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C25	3300			RS-1514	BPD-0033	DD-332	BYA10D33	B-233	5HK-D33	
C26	50000			RS-1024	BPD-05	DF-503			5HK-S5	
C27	10000			RS-1022	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C28	10000			RS-1022	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C29	10000			RS-1022	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C30	10000			RS-1022	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C31	5000			RS-1023	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C32	5000			RS-1023	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C33	1000			RS-1051	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C34	10000	1400		RS-1518		DD30103		2HV-110		

① Some versions may use 33mmf N1500 in this application (Part #RS-1661).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA G. E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	2meg	1/2	RS-1494				PP26A	Volume & Switch
R2A	2meg	1/2	RS-1493	B-76	A47-2meg-Z	Q13-139	U55	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	G. E. PART No.	NOTES
R3	1.8meg			Note 1
R4	22K			
R5	22K			
R6	220Ω			
R7	1500Ω			
R8	1.8meg			Note 1
R9	150Ω			
R10	1800Ω			
R11	1.8meg			Note 1
R12	470K			
R13	680Ω			
R14	100K			
R15	15K			
R16	150Ω			
R17	220K			
R18	4700Ω			
R19	150Ω	5	RS-1441	
R20	4700Ω			
R21	1000Ω	3	RS-1566	
R22	33Ω	1	RS-1521	

Note 1. Some versions may use 2.2meg in this application.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	G. E. PART No.	REPLACEMENT DATA
K1	AM Det. RF Filter	150mmf, 150mmf, 47K	RS-1315	Aerovox PA-98 Centralab PC-51 Cornell-Dubilier 111TM2 Sprague D-2
K2	De-emphasis Net	470mmf, 1000mmf, 100K, 100K, 100K	RS-1316	
K3	Audio Coup. Net	5000mmf, 10000mmf, 470K, 470K, 6.8meg	RS-1317	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA G. E. PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Coil	RS-1655	19-1000	19-1000	BC-561	4602		
L2	RF Choke	RS-1292						
L3	FM RF Coil	RS-1509						
L4	Cathode Choke	RS-1294						
L5	FM Osc. Coil	RS-1510						
L6	Loopstick	RS-1497						
L7	AM Ant. Coil	RS-1511						
L8	AM Ant. Coil	RS-1473						①
L9	AM Osc. Coil	RS-1318						
L10	RF Choke	RS-1294						
L11	RF Choke	RS-1294						
L12	1st FM IF Trans.	RS-1502	16-3490	16-3490		1463-PC		
L13	1st AM IF Trans.	RS-1504	16-6780	16-6780	BC-356	13-PC1 1463-PC	RF-4	
L14	2nd FM IF Trans.	RS-1505	16-3490	16-3490				
L15	2nd AM IF Trans.	RS-1503	16-6780	16-6780	BC-357	13-PC2	RF-4	
L16	3rd FM IF Trans.	RS-1527						
L17	Discriminator	RS-1506						
L18	Fil. Choke	RS-1328						
L19	Fil. Choke	RS-1328						

① Wound On Resistor

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA G. E. PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3600Ω	3-4Ω	RS-1507	24S48	A-3025			24S48	S-12X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA G. E. PART No.	QUAM PART No.	NOTES
SP1	6"	PM	3-4Ω	RB-1017	6A1	

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA G. E. PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.063A	RS-1319 ①	1235AH① HA154 ②	T100 ① SD-94②	100A① K200②		① Selenium Type ② Silicon Type

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA G. E. PART No. FUSE	G. E. HOLDER	LITTELFUSE FUSE	LITTELFUSE HOLDER	BUSS FUSE	BUSS HOLDER
M2	3AG	4/10A 125V S/B	RS-1442		315.400 (3AG 4/10A 125V) S/B		MDV 4/10	

MISCELLANEOUS

ITEM No.	PART NAME	G. E. PART No.	NOTES
M3	Tuning Cap.	RS-1501	FM-AM, 4 Gang
M4	Switch	RS-1508	Band (2 Position, Rotary Wafer Type)
M5	Switch	RS-1519	Radio-Phono (DPDT, Slide Type)
	Dial Pointer	RS-1486	
	Printed Board	595D169R	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	RS-1487	Tuning
Knob	RDK-425	Volume-On-Off, Tone
Knob	RS-1500	Band
Cabinet Assembly	RB-1079	Includes Control Plate, Dial Plate, Medallion

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

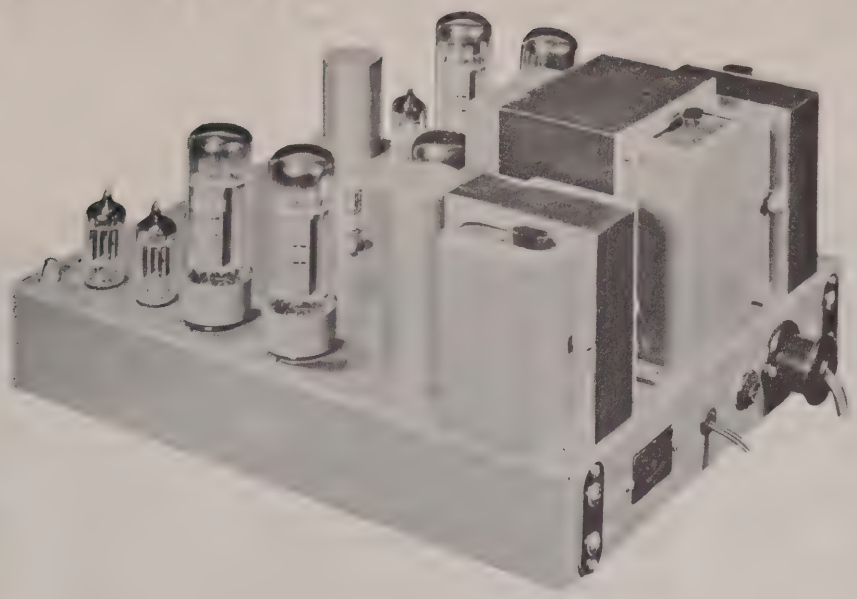
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT* Folder

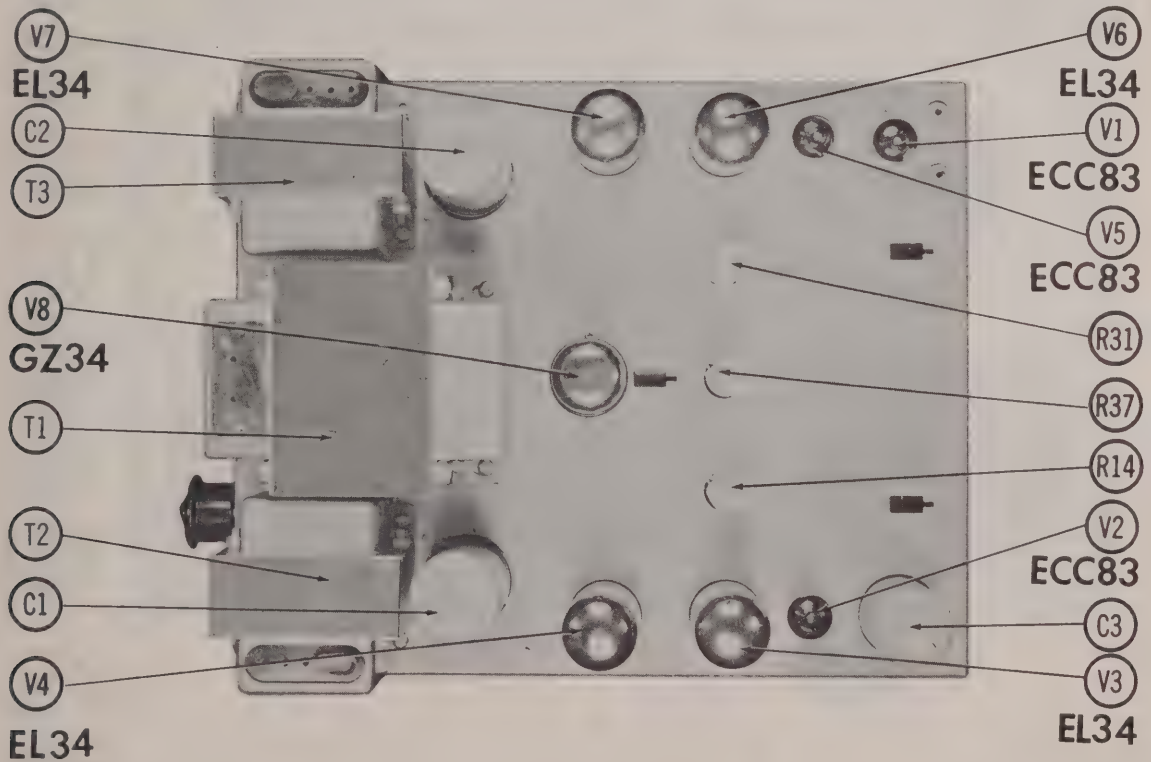
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

LEAK MODEL
Stereo 50

LEAK MODEL
Stereo 50



TRADE NAME	Leak Model Stereo 50
IMPORTER	British Industries Corp., 80 Shore Road, Port Washington, N. Y.
TYPE SET	AC Operated 8 Tube Stereo Amplifier
POWER SUPPLY	110/117/124 Volts AC, 60 Cycles RATING 140 Watts, 1.8 Amp. @117 Volts AC



LEAK MODEL
Stereo 50

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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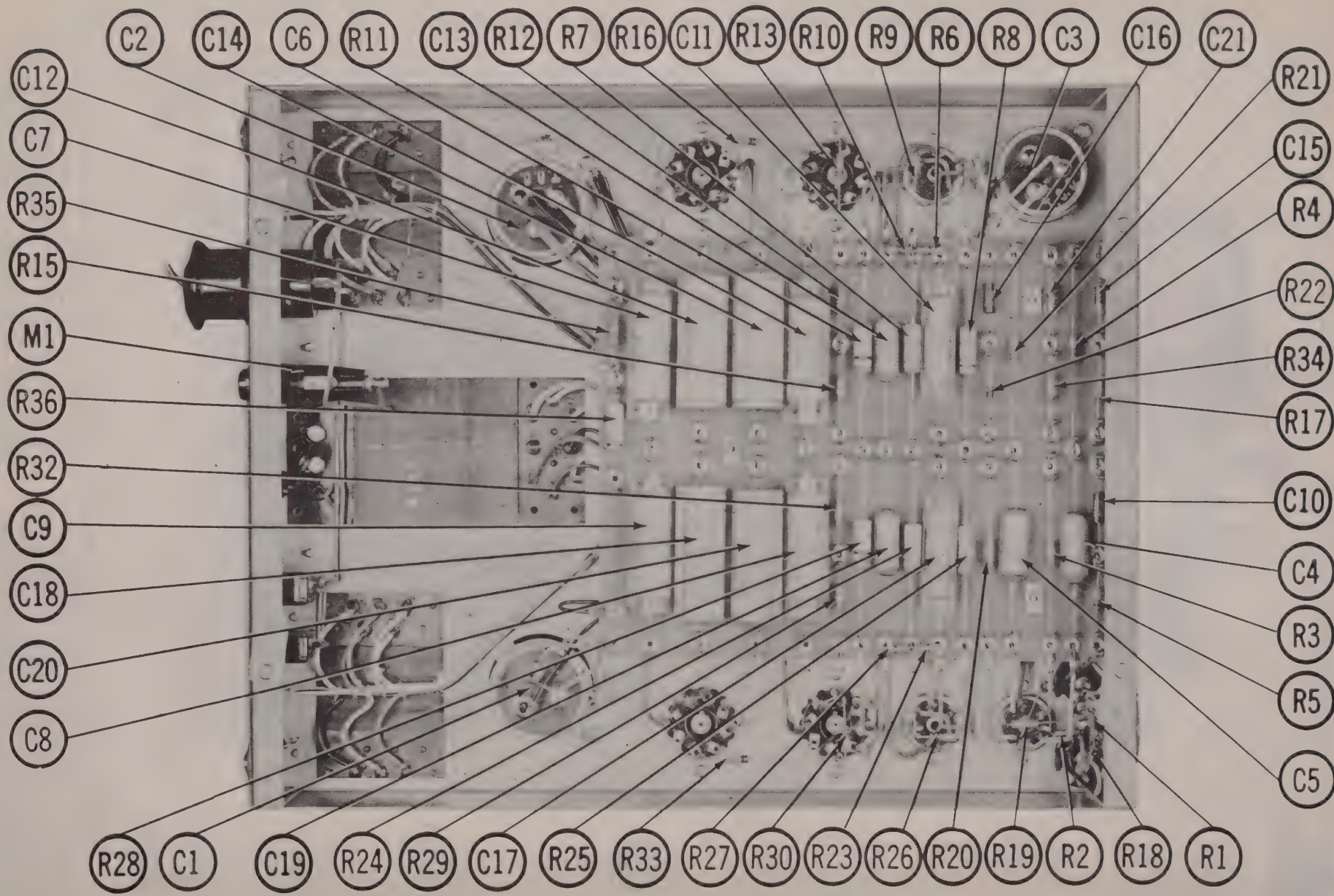
SET 451 FOLDER 9



CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Right Channel AF Amp. - Left Channel AF Amp.	ECC83	①
V2	Right Channel AF Amp. - Right Channel Phase Inv.	ECC83	①
V3	Right Channel Output	EL34	②
V4	Right Channel Output	EL34	②
V5	Left Channel AF Amp. - Left Channel Phase Inv.	ECC83	①
V6	Left Channel Output	EL34	②
V7	Left Channel Output	EL34	②
V8	Rectifier	GZ34	③

① Alternate B339, 12AX7 ② Alternate KT66, 5881 ③ Alternate 5AR4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	LEAK PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	16	450		E450V16-16	B0485	FP258	TMD-48		
B	16	450							
C2A	16	450		E450V16-16	B0485	FP258	TMD-48		
B	16	450							
C3A	32	350		E350/50V30-30-50	B0430	FP237	TMD-52		
B	32	350							
C4	50	12		XPP-12050	BBR50-25	TT15X50	TD-50-25	TVA-1206	
C5	50	12		XPP-12050	BBR50-25	TT15X50	TD-50-25	TVA-1206	
C6	50	50		PRS50V50	BR505	TC39	TD-50-50	TVA-1308	
C7	50	50		PRS50V50	BR505	TC39	TD-50-50	TVA-1308	
C8	50	50		PRS50V50	BR505	TC39	TD-50-50	TVA-1308	
C9	50	50		PRS50V50	BR505	TC39	TD-50-50	TVA-1308	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	LEAK PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C10	.001	400			P488N-001	D6-102	CUB6D1	GEM-421	6TM-D1	
C11	.1	350			P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C12	.25	350			P488N-25		CUB4P25	GEM-4025	4TM-P25	
C13	.02	350			P488N-02	DD-203	CUB4S2	GEM-412	4TM-S2	
C14	.25	350			P488N-25		CUB4P25	GEM-4025	4TM-P25	
C15	.0002	400	10%			DD-201	PM6T25	MCB237	6TM-T25	
C16	.001	400			P488N-001	D6-102	CUB6D1	GEM-421	6TM-D1	
C17	.1	350			P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C18	.25	350			P488N-25		CUB4P25	GEM-4025	4TM-P25	
C19	.02	350			P488N-02	DD-203	CUB4S2	GEM-412	4TM-S2	
C20	.25	350			P488N-25		CUB4P25	GEM-4025	4TM-P25	
C21	.0002	400	10%			DD-201	PM6T25	MCB237	6TM-T25	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		LEAK PART No.	NOTES
	OHMS	WATT		
R1	1meg			
R2	22K			
R3	220K			
R4	2200Ω			
R5	100Ω			
R6	3.3meg			
R7	22K	1		
R8	180K	1		
R9	1000Ω			
R10	3.3meg			
R11	200K	1		
R12	680K			
R13	10K			
R14A	440Ω	10		
B	440Ω			
R15	680K			
R16	10K			
R17	18K			
R18	1meg			
R19	22K			
R20	220K			
R21	2200Ω			
R22	100Ω			
R23	3.3meg			
R24	22K	1		
R25	180K	1		
R26	1000Ω			
R27	3.3meg			
R28	200K	1		
R29	680K			
R30	10K			
R31A	440Ω	10		
B	440Ω			
R32	680K			
R33	10K			
R34	18K			
R35	47K			
R36	12K	1		
R37	100Ω	5		

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	LEAK PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	124V Tap @117V @ 1.8A Tap @110V	680 VCT @.250A	5V@ 1.9A	8191						
	SEC. 3	SEC. 4	SEC. 5							
	6.3 VCT @4.5A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	LEAK PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7000Ω CT Screen Taps@ 2000Ω CT	16Ω Taps@ 8Ω, 4Ω	3925						S-142A①	① Drill new mounting holes.
T3	7000Ω CT Screen Taps@ 2000Ω CT	16Ω Taps@ 8Ω, 4Ω	3925						S-142A①	

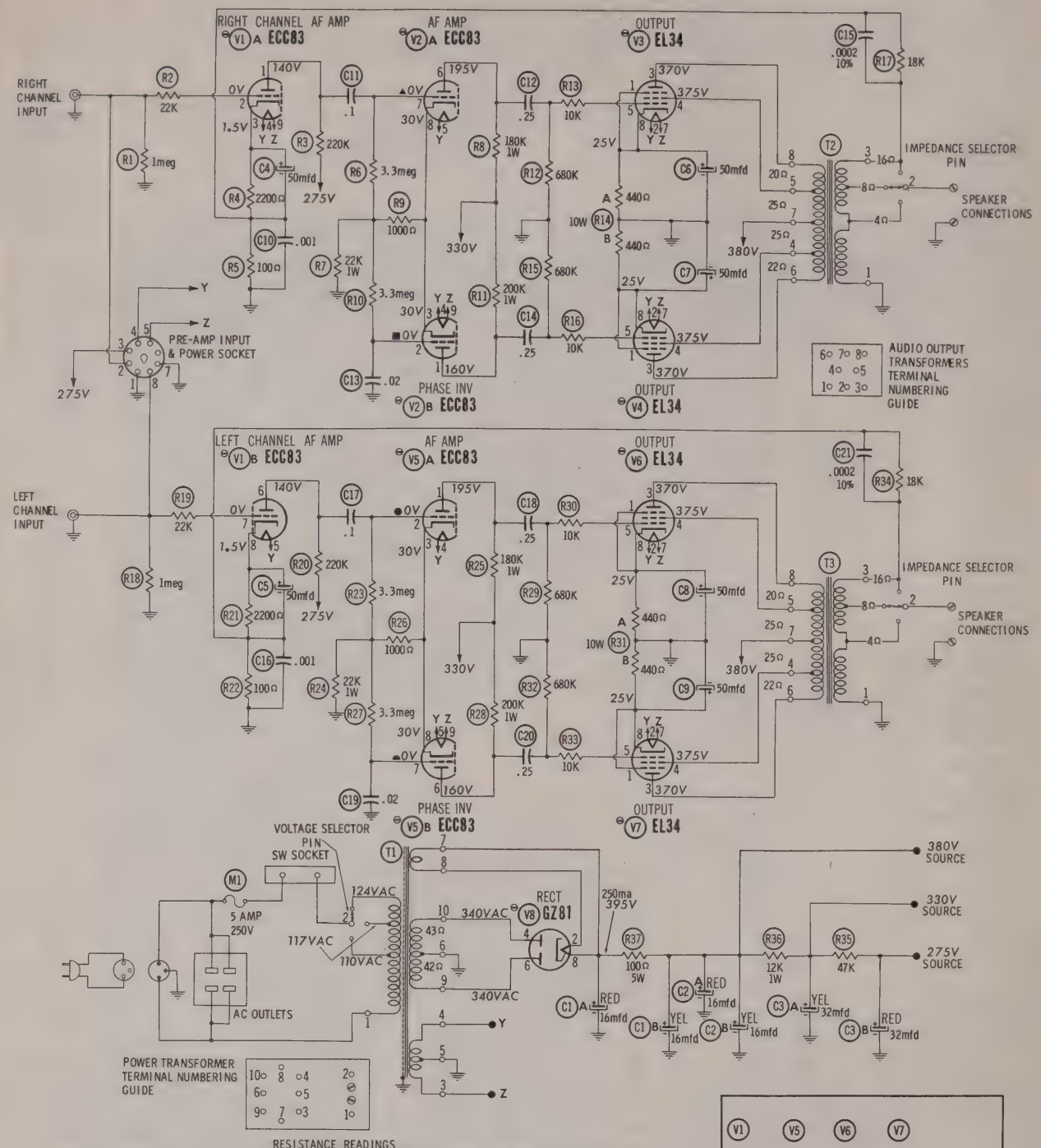
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			LEAK PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1		5A 250V			312005. (5A 250V)	341001	MTH5	HKP

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83	†280K	1meg	2300Ω	.1Ω	.1Ω	†280K	1meg	2300Ω	.1Ω
V2	ECC83	†210K	3.3meg	23K	.1Ω	.1Ω	†190K	3.3meg	23K	.1Ω
V3	EL34	440Ω	.1Ω	†145Ω	†125Ω	690K	NC	.1Ω	440Ω	
V4	EL34	440Ω	.1Ω	†145Ω	†125Ω	690K	NC	.1Ω	440Ω	
V5	ECC83	†190K	3.3meg	23K	.1Ω	.1Ω	†210K	3.3meg	23K	.1Ω
V6	EL34	440Ω	.1Ω	†145Ω	†125Ω	690K	NC	.1Ω	440Ω	
V7	EL34	440Ω	.1Ω	†145Ω	†125Ω	690K	NC	.1Ω	440Ω	
V8	GZ34	NC	¶	NC	43Ω	NC	42Ω	NC	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V8.
■ MEASURED FROM PIN 3 OF V2. ♦ MEASURED FROM PIN 3 OF V5.
▲ MEASURED FROM PIN 8 OF V2. ▲ MEASURED FROM PIN 8 OF V5.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. Proper output load connected.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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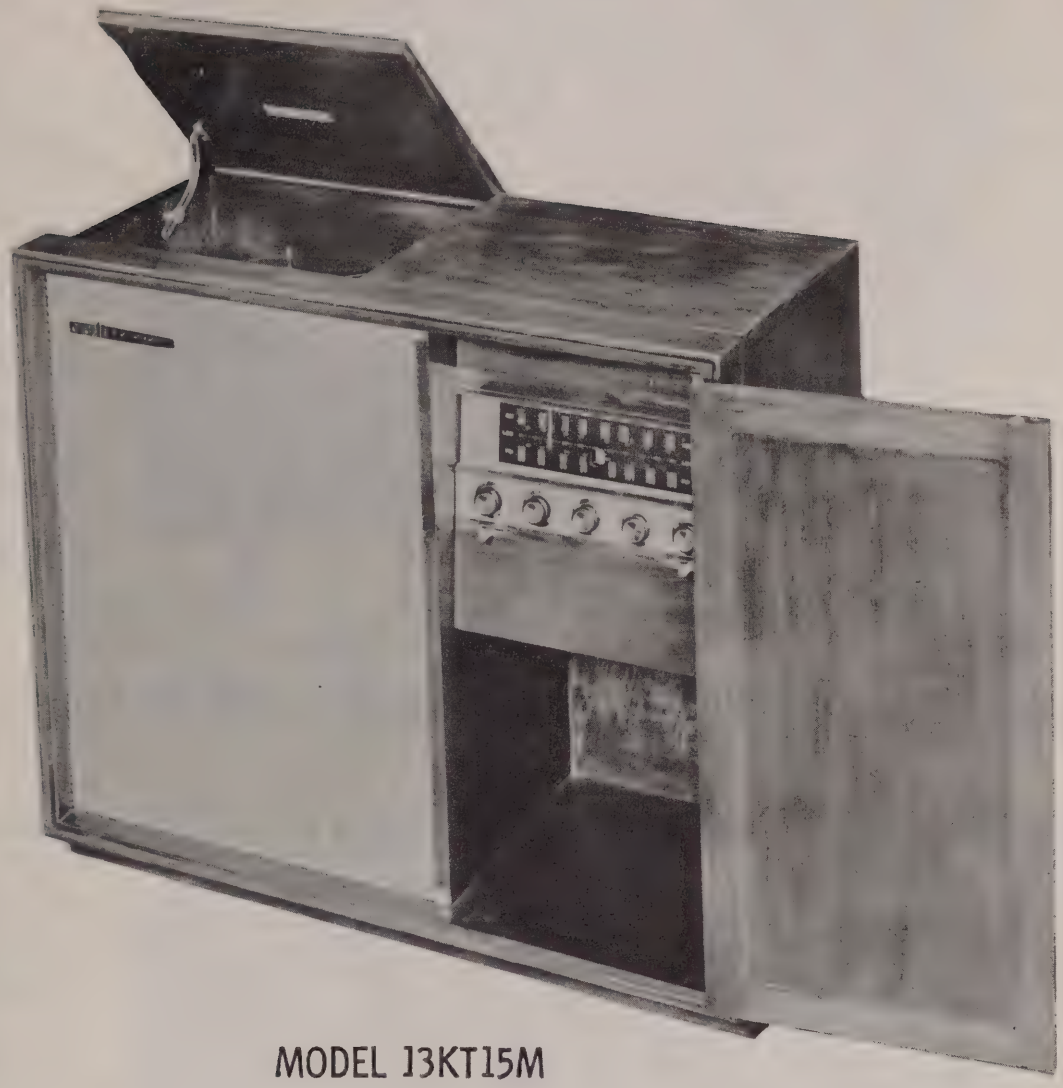
LEAK MODEL Stereo 50

PHOTOFACT* Folder

MOTOROLA MODELS 13KT15B, CW, M (Ch. HS-677)

MOTOROLA MODELS 13KT15B, CW, M (Ch. HS-677)



MODEL 13KT15M

MOTOROLA MODELS 13KT15B, CW, M (Ch. HS-677)

TRADE NAME	Motorola Models 13KT15B, 13KT15CM, 13KT15M (Ch. HS-677)		
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois		
TYPE SET	AC Operated 13 Tube FM-AM Receiver With 4 Speed Automatic Record Changer		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	90 Watts, .88 Amp. @ 117 Volts AC
TUNING RANGE	BROADCAST 535 - 1620KC	FREQ. MOD.	88 - 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER VM17RC - SEE SIMILAR V-M 1200A - PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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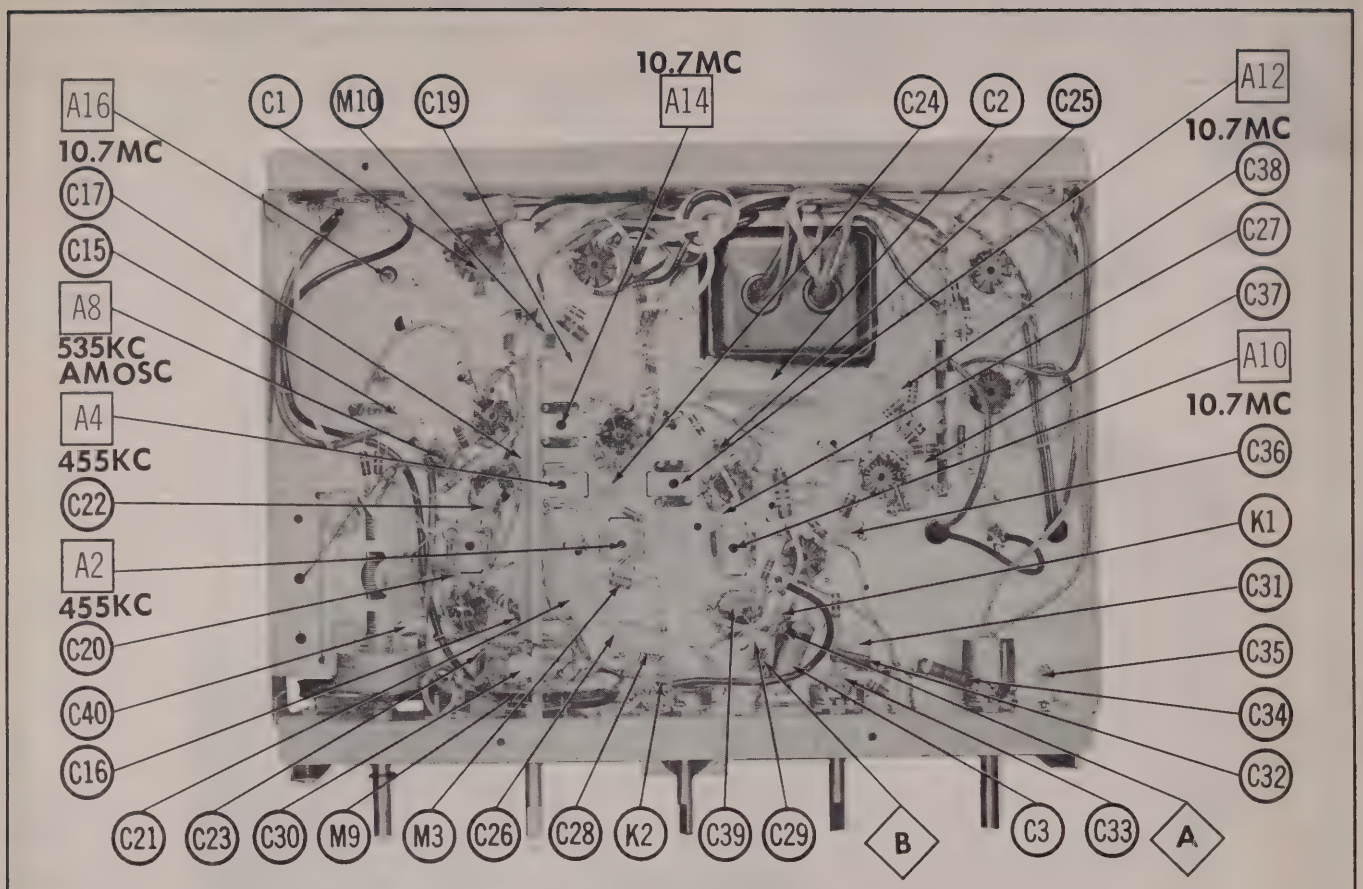
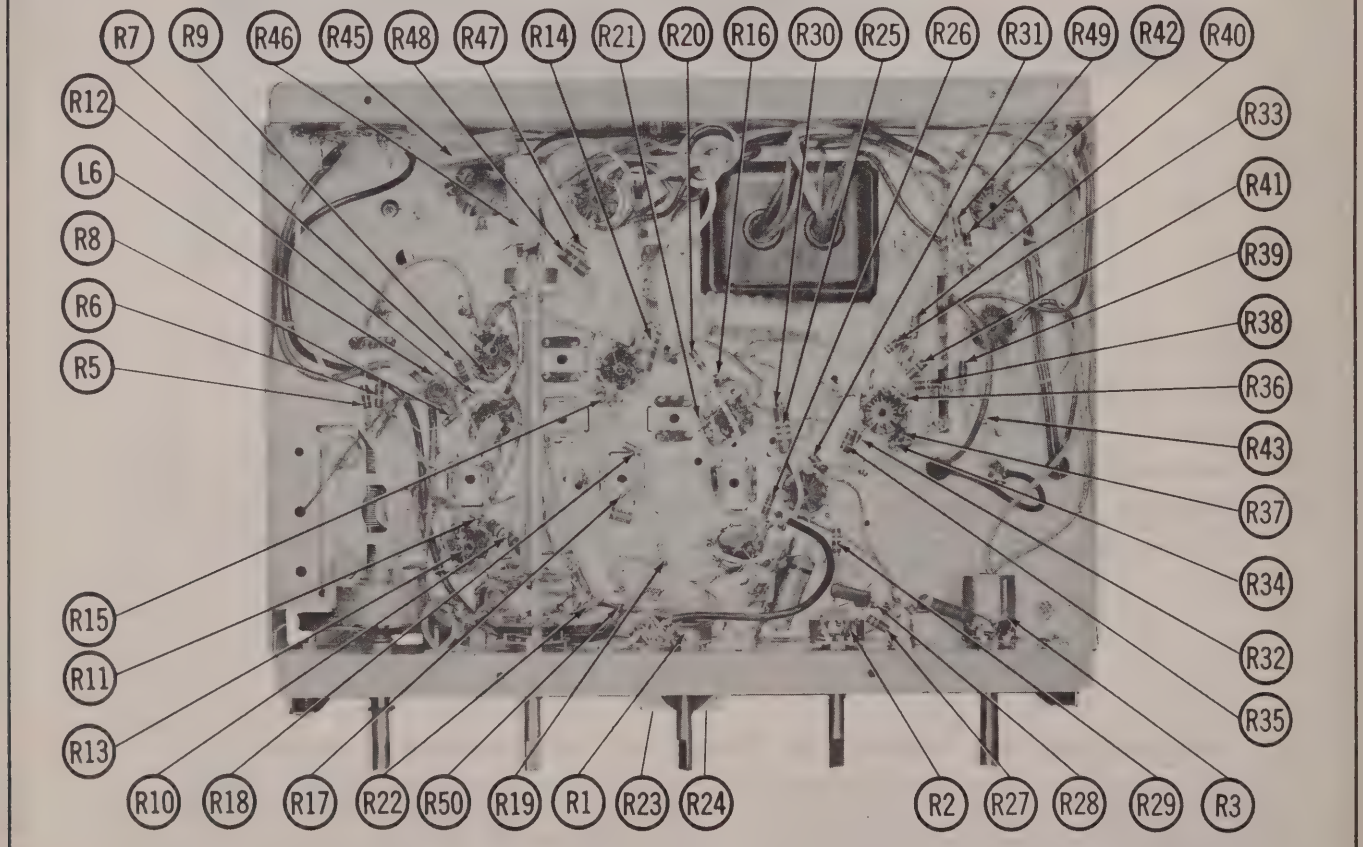
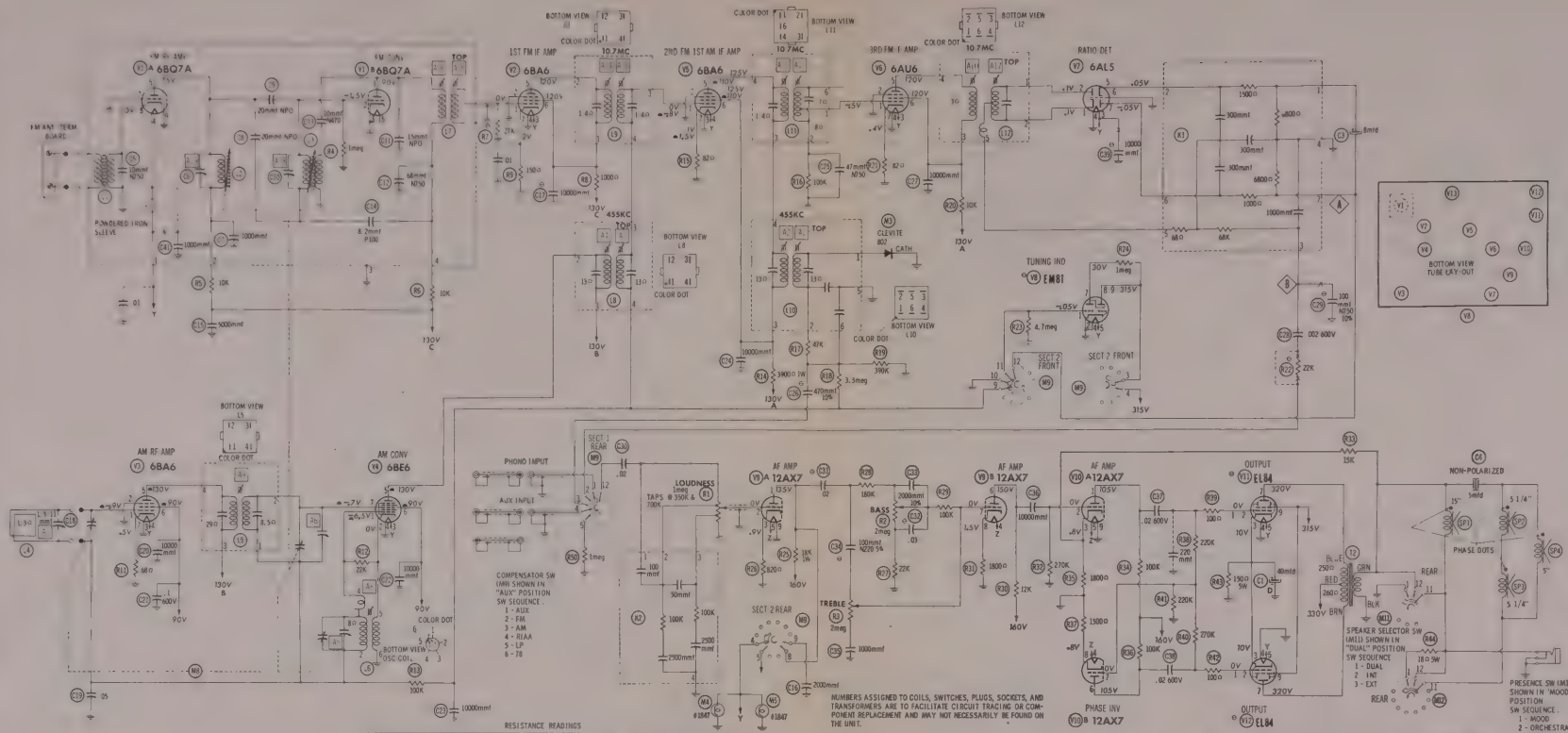
SET 451 FOLDER 10



CHASSIS BOTTOM VIEW — RESISTOR & INDUCTOR IDENT.



CHASSIS BOTTOM VIEW - CAPACITOR, MISC, & ALIGN IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BQ7A	↑15K	1meg	0Ω	.1Ω	0Ω	↑15K	0Ω	.1Ω	0Ω
V2	6BA6	1.7Ω	0Ω	.1Ω	0Ω	↑6000Ω	↑6000Ω	150Ω		
V3	6BA6	2.2meg	0Ω	0Ω	1Ω	↑=5200Ω	↑=15K	68Ω		
V4	6BE6	22K	.5Ω	.1Ω	0Ω	↑=5200Ω	↑=15K	=2.2meg		
V5	6BA6	1Ω = 2meg	0Ω	.1Ω	0Ω	↑9000Ω	↑9000Ω	82Ω		
V6	6AU6	300K	0Ω	.1Ω	0Ω	↑15K	↑15K	82Ω		
V7	6AL5	INF	INF	1Ω	0Ω	8300Ω	0Ω	7830Ω		
V8	EM81 6DA5	6800Ω	0Ω	NC	0Ω	1Ω	NC	↑1meg	↑330Ω	↑330Ω
V9	12AX7	↑26K	0Ω	820Ω	1Ω	1Ω	↑20K	120K	1800Ω	0Ω
V10	12AX7	↑110K	270K	1500Ω	.1Ω	1Ω	↑110K	220K	1500Ω	0Ω
V11	EL84 6BQ5	440K	440K	150Ω	0Ω	.1Ω	NC	↑250Ω	NC	↑330Ω
V12	EL84 6BQ5	490K	490K	150Ω	0Ω	1Ω	NC	↑260Ω	NC	↑330Ω
V13	EZ81 6CM4	40Ω	NC	1	INF	INF	NC	43Ω	NC	NC

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• MEASURED IN "AM" POSITION.
† MEASURED FROM PIN 3 OF V13.
NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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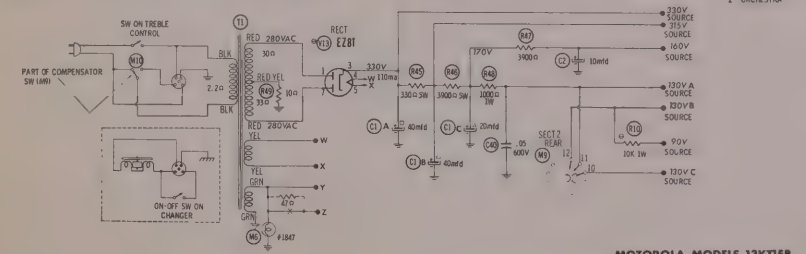


MOTOROLA MODELS 13KT15B, CW, M (Ch. HS-677)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1, A2, A3, A4, A8, A9	GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987 WALSCO #2531
A5, A6, A7, A18, A19	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A10, A17	GENERAL CEMENT #5097, 8727 WALSCO #2515
A11, A12, A13, A14	GENERAL CEMENT #8607, 9291 WALSCO #2520, 2522, 2523, 2524, 2537
A15, A16	GENERAL CEMENT #8282, 8606, 8606L, 9091 WALSCO #2526, 2541, 2543, 2544

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 7 (grid) of AM Converter (V4). Low side to chassis.	455KC (400∿ AM)	AM	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	"	Loop	1620KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	"	1400KC	"	A6, A7	Adjust for maximum output. A7 should be adjusted with chassis in cabinet.
	Steps 4, 5, 6 and 7 are not necessary unless RF or oscillator coils have been tampered with or associated components have been replaced.							
4.	.1mfd	High side to pin 7 (grid) of AM Converter (V4). Low side to chassis.	1620KC	AM	Tuning gang fully open	Across voice coil	A5	Adjust for maximum output.
5.	"	"	535KC	"	Tuning gang fully closed.	"	A8	Adjust for maximum output. Repeat steps 4 and 5.
6.		Loop	1400KC	"	1400KC	"	A6	Adjust for maximum output.
7.		"	600KC	"	600KC	"	A9	Adjust for maximum output. Repeat steps 6 and 7 until no further improvement is noted. A6 should be last adjustment.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.		Across antenna terminals	10.7MC (Unmod.)	FM	Tune to high end of band.	DC probe to point (A). Common to chassis.	A10, A11, A12, A13, A14, A15, A16	Adjust for maximum deflection.
9.		"	"	"	"	DC probe to point (B). Common to chassis.	A17	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 8 and 9 until no further improvement is noted. Step 9 should be last.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

	Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.							
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
8.		Across antenna terminals	10.7MC	FM	High frequency end stop	Vert. Amp. to point (A). Low side to chassis.	A10, A11, A12, A13, A14, A15, A16	Disconnect stabilizing capacitor C3. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
9.		"	"	"	"	Vert. Amp. to point (B). Low side to point (A).	A17	Reconnect stabilizing capacitor C3. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A10 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	108.1MC ((Unmod.)	FM	High frequency end stop	DC probe to point (A). Common to chassis.	A18	Adjust for maximum deflection.
11.	"	"	98MC	"	98MC	"	A19	"

FIG. 1

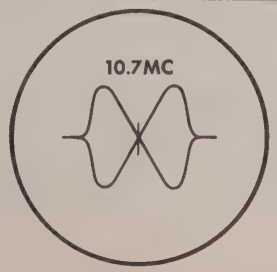


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amp. - FM Conv.	6BQ7A	
V2	1st FM IF Amplifier	6BA6	
V3	AM RF Amplifier	6BA6	
V4	AM Converter	6BE6	
V5	2nd FM - 1st AM IF Amp.	6BA6	
V6	3rd FM IF Amplifier	6AU6	
V7	Ratio Detector	6AL5	

ITEM No.	USE	TYPE	NOTES
V8	Tuning Indicator	EM81/6DA5	
V9	AF Amplifier	12AX7	
V10	AF Amp. - Phase Inv.	12AX7	
V11	Output	EL84/6BQ5	
V12	Output	EL84/6BQ5	
V13	Rectifier	EZ81/6CA4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	350	23D641531	AFH4-53	D0460	FP419. 3	TMQ-57	TVL-4621. 6	
B	■40	350							
C	▲20	350							
D	40	25							
C2	10	400	23B642409	PRS450V10	BR1045	TC72	TD-10-450	TVA-1705	
C3	8	50	23A638536	PRS150V8	BBR10-50	TC41	TD-8-150	TVA-1405	
C4	5	10AC	23A632250	ACPRS10V8	BBR10-25 † BBR10-25 †	TCN105		TVAS-1110 *	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

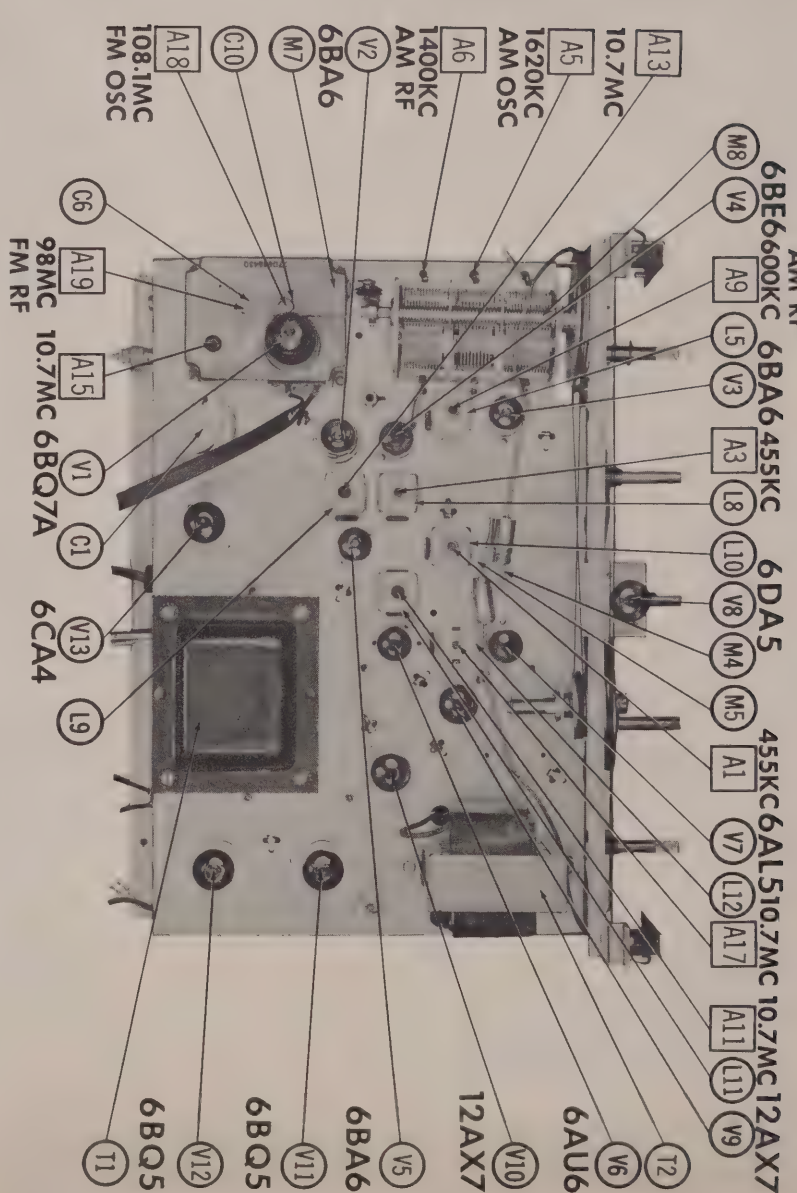
† Connect negative leads together.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C5	10		N750	21K640021	N750-SI 10	TCN-10	C10Q1U	CN7-410	5TCU-Q1	
C6				20K640023						
C7	1000			21K640022	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C8	20		NPO	21K640024	NPO-SI 20	TCZ-20	C10Q2C	CNO-420	5TCC-Q2	
C9	20		NPO	21K640024	NPO-SI 20	TCZ-20	C10Q2C	CNO-420	5TCC-Q2	
C10				20K640025						
C11	15		NPO	21K640028	NPO-SI 15	TCZ-15	C10Q15C	CNO-415	5TCC-Q15	
C12	68		N750	21K640029	N750-SI 68	TCN-68	C10Q68U	CN7-468	5TCU-Q68	
C13	10		N470	21K640026						
C14	8. 2		P100	21K640027						
C15	5000			21R122915	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C16	2000			21K121836	BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C17	10000			21R482726	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	①
C18	1.3-11			20B641777						
C19	. 05	200		8R121005	P288N-05	DF-503	CUB2S5	GEM-215	2TM-S5	
C20	10000			21R482726	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C21	. 1	600		8R121869	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C22	10000			21R482726	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C23	10000			21R482726	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C24	10000			21R482726	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C25	47		N750	21R155593	N750-DI 47	DTN-47	C10Q47U	CN7-447	5TCU-Q47	
C26	470		10%	21K121797	DI 470	MD-471		JL-347	5GA-T47S 10% *	②
C27	10000			21R482726	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C28	. 002	600		8R121568	P688N-002	D6-202	CUB6D2	GEM-622	6TM-D2	
C29	100		N750 10%		N750-DI 100	DTN-100	C10T1U	CN7-310	5TCU-T1S 10% *	①
C30	. 02	400		8K128691	P488N-02	DD-203	CUB4S2	GEM-412	4TM-S2	
C31	. 02	400		8R121566	P488N-02	DD-203	CUB4S2	GEM-412	4TM-S2	③
C32	. 03	200		8K129298	P288N-03	DF-303	CUB6S3	GEM-413	4TM-S3	③④
C33	2000		10%	21K121836	DI 2000			JL-220	5GA-D2S 10% *	
C34	100		N220 5%	21R400537						⑤
C35	1000			21R410127	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C36	10000			21R121946	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C37	. 02	600		8R122079	P688N-02	DD-203	CUB6S2	GEM-612	6TM-S2	
C38	. 02	600		8R122079	P688N-02	DD-203	CUB6S2	GEM-612	6TM-S2	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C39	10000			21R482726	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	①
C40	.05	600		8R122185	P688N-05	DF-503	CUB6S5	GEM-615	6TM-S5	
C41	1000			21R410127	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Not used in some versions.
② Some versions may use 2000mmf in this application. Replace with 470mmf (Part #21K121797).
③ Some versions may use .01mfd 400V in this application (Part #8R121002).
④ Some versions may use .02mfd 200V in this application (Part #8K128691).
⑤ Some versions may use 120mmf in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	1meg	½	18B641721	BT-165		Q18-137XX	UDT289	Loudness, Taps ② 350K &
R2A	2meg	½	18K641508	B-76	A47-2meg-Z	Q13-139	U55	Bass 700K
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	2meg	½	18B641776	B-76	A47-2meg-Z	Q13-139	U55	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-7	SWE-12	76-1	US-26	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R4	1meg		17K640032	
R5	10K		6R6054	
R6	10K		6R6054	
R7	27K		6K121300	Note 1
R8	1000Ω		6K121301	
R9	150Ω		6K124797	
R10	10K	1	6K122319	Note 2
R11	68Ω		6R2039	
R12	22K		6K119405	
R13	100K		6K125534	
R14	3900Ω	1	6R5618	
R15	82Ω		6K127516	
R16	100K		6K125534	
R17	47K		6K121299	
R18	3.3meg		6K119407	
R19	390K		6R5646	
R20	10K		6K119932	
R21	82Ω		6K127516	
R22	22K		6K119405	Note 1
R23	4.7meg		6K121277	
R24	1meg		6K124494	
R25	18K	1	6R5734	
R26	820Ω		6K121302	
R27	22K		6K119935	

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R28	180K		6K125531	
R29	100K		6K125534	
R30	12K		6K119933	
R31	1800Ω		6K122445	
R32	270K		6R6414	
R33	15K		6K119934	
R34	100K		6K125534	
R35	1800Ω		6K122445	
R36	100K		6K125534	
R37	1500Ω		6K127513	
R38	220K		6K122322	
R39	100Ω		6R6018	
R40	270K		6R6414	
R41	220K		6K122322	
R42	100Ω		6R6018	
R43	150Ω	5	17K636326	
R44	18Ω	5	17K641670	
R45	330Ω	5	17K642037	
R46	3900Ω	5	17K740259	
R47	3900Ω		6K121931	
R48	1000Ω	1	6R6327	
R49	10Ω		6K124668	
R50	1meg		6K124494	

Note 1. Not used in some versions.
Note 2. Some versions may use 2700Ω in this application. Replace with 10K (Part #6K122319).

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K1	Ratio Det. Net.	300mmf, 300mmf, 300mmf, 1000mmf, 68Ω, 1000Ω, 1500Ω, 6800Ω, 6800Ω, 68K	51B639144	Centralab PC-342
K2	Tone Comp.	50mmf, 100mmf, 2500mmf, 2500mmf, 100K, 100K	51B641643	Centralab PC-325

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		MOTOROLA PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Trans.	25K640033 †						Includes L3.
L2	FM RF Tuning Coil	24K640031 †						Includes L2.
L3	FM Osc. Tuning Coil	24K640031 †						Includes C18.
L4	Loop Antenna	1V641877						
L5	AM RF Trans.	24C634251						
L6	AM Osc. Coil	24B638340	14-1073	14-1073	BC-393	69-OSC		
L7	1st FM IF Trans.	25K640034 †						† Part of M7.
L8	1st AM IF Trans.	24K641654	16-6758	16-6758	BC-352	12-C1	RF-1	
L9	2nd FM IF Trans.	24K642112	16-3487	16-3487	FM-254	1463		
L10	2nd AM IF Trans.	24K641655	16-6770	16-6770	BC355	12-C6		
L11	3rd FM IF Trans.	24K638647						
L12	Ratio Detector	24C638488	17-3498	17-3498	FM-255	1465		

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ② .88A	560VCT ② .110A	6V ② .9A	25C641644						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V ② 4.5A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5500Ω CT	6-8Ω	25C641731	24S55 ①	A-2905	AU-609 ①	A-3880	24S55 ①	S-57Z ①	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	15"	PM	6-8Ω	50C632259	15A10LF0	① Connect in series and phase.
SP2	5 1/4"	PM	14-16Ω	50K638576 ①	52A1Z15.5 ①	
SP3	5 1/4"	PM	14-16Ω	50K638577 ①	52A1Z16 ①	
SP4	5"	PM	8-10Ω	50C638562	5A15TZ8.9	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	MOTOROLA PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1		89-TB *				* Includes needle and mounting mechanism.

PARTS LIST AND DESCRIPTIONS (Continued)

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	MOTOROLA PART No.	JENSEN PART No.	WALCO PART No.	
M2		† S-61 or †♦S-61SD or ♦ S-61D	* † W-77TPS or * †♦W-77DS or * ♦ W-77TPD	* Includes Cartridge † Jewel ♦ Diamond

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		MOTOROLA PART No.	CBS PART No.	SYLVANIA PART No.	
M3	Clevite 802	48K636691	1N60	1N295	AM Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M4	Lamp	65R125595	#1847
M5	Lamp	65R125595	#1847
M6	Lamp	65R125595	#1847
M7	FM Tuner	77D638430	(UT-343) Complete
M8	Tuning Cap.	19B641650	AM, 3 Gang (Ant. 6-509mmf, RF 7-370mmf, Osc. 7-105mmf)
M9	Switch	40D641553	Compensator (6 Position, Rotary Wafer Type)
M10	Switch	40K643293	Power On-Off (SPDT, Rotary Snap Type)
M11	Switch	40B641705	Speaker Selector (3 Position, Rotary Wafer Type)
M12	Switch	40B641705	Presence (3 Position, Rotary Wafer Type)

CABINETS & CABINET PARTS

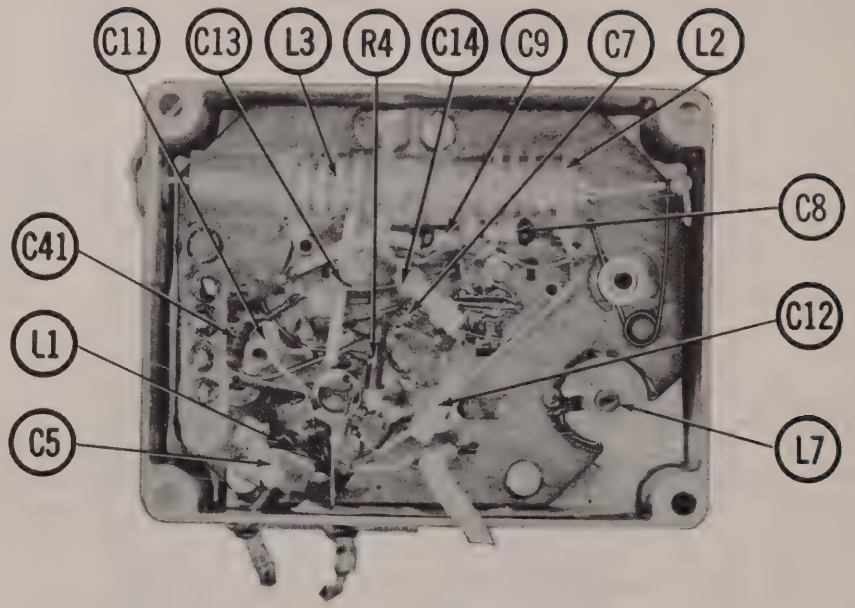
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

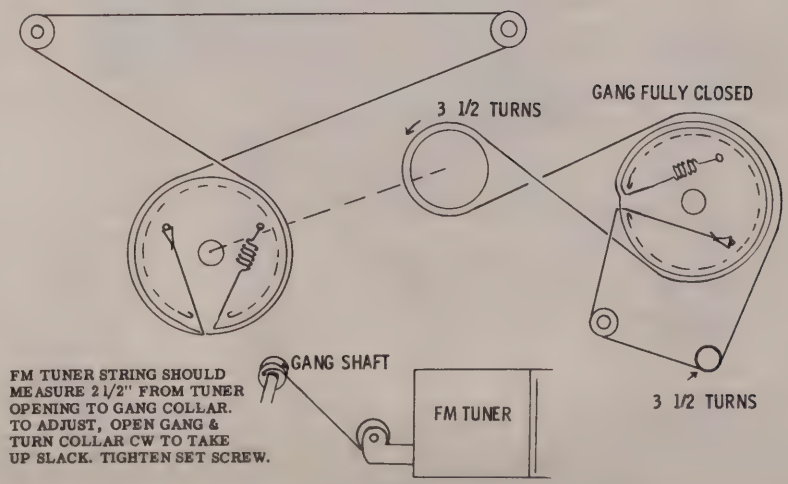
NAME	PART NO.	DESCRIPTION
Bezel	13D641512	Upper Dial
Bezel	13D641514	Lower Dial
Knob	36K641619	Tuning
Knob	36K641610	Compensator, Power On-Off
Knob	36K641613	Loudness
Knob	36K641615	Bass
Knob	36K641657	Treble
Knob	36A641706	Speaker Selector, Presence
Cabinet	16K641782	Blond, Model 13KT15B
Cabinet	16K641781	Cherry, Model 13KT15CW
Cabinet	16E641780	Mahogany, Model 13KT15M
Door	16K641788	Cabinet, Model 13KT15B
Door	16K641787	Cabinet, Model 13KT15CW
Door	16K641786	Cabinet, Model 13KT15M
Lid	16K641791	Cabinet, Model 13KT15B
Lid	16K641790	Cabinet, Model 13KT15CW
Lid	16K641789	Cabinet, Model 13KT15M
Dial Pointer	1K641655	
Dial Scale	34C641737	
Background Dial	64C641590	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

FM RF SUB CHASSIS





FM TUNER STRING SHOULD MEASURE 2 1/2" FROM TUNER OPENING TO GANG COLLAR. TO ADJUST, OPEN GANG & TURN COLLAR CW TO TAKE UP SLACK. TIGHTEN SET SCREW.

DRIVE CORD STRINGING

PHOTOFACT* Folder

NEWCOMB
MODEL E-10A

NEWCOMB
MODEL E-10A

NEWCOMB
MODEL E-10A

TRADE NAME	Newcomb Model E-10A
MANUFACTURER	Newcomb Audio Products Co., 6824 Lexington Ave., Hollywood 38, California
TYPE SET	AC Operated 5 Tube Audio Amplifier
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 48 Watts, .47 Amp. @117 Volts AC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

J131

SET 451 FOLDER 11

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Mike Preamp. -Phase Inv.	ECC83/ 12AX7	
V2	AF Amplifier	6SJ7	

ITEM No.	USE	TYPE	NOTES
V3	Output	6V6GT	
V4	Output	6V6GT	
V5	Rectifier	6X5GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	NEWCOMB PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	▲20	475	CE-30	AFH4-19-10	D0179.3	FP474.5 TC36	TMQ-123	TVLS-4825*	
B	■10	475							
C	▲10	475							
D	25	50							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	NEWCOMB PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.022	600			P688N-022	DD-203	CUB6S22	GEM-6122	6TM-S22	
C3	.022	600			P688N-022	DD-203	CUB6S22	GEM-6122	6TM-S22	
C4	20000				BPD-02	DD-203	BYA10S2	B-120	5HK-S2	
C5	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C6	.1	400			P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C7	.022	600			P688N-022	DD-203	CUB6S22	GEM-6122	6TM-S22	
C8	.022	600			P688N-022	DD-203	CUB6S22	GEM-6122	6TM-S22	
C9	.022	600			P688N-022	DD-203	CUB6S22	GEM-6122	6TM-S22	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	NEWCOMB PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2meg	½	RV-49	B-77		Q17-139	RU26R *	Treble
B	Shaft			Not Req.		Not Req.	SS3500	
C	Switch			KR-1		76-1	US-41	
R2A	500K	½	RV-41	B-60	A47-500K-Z	Q13-133	U48	Phono
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	500K	½	RV-41	B-60	A47-500K-Z	Q13-133	U48	Mike
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

* Use bushing SL-38

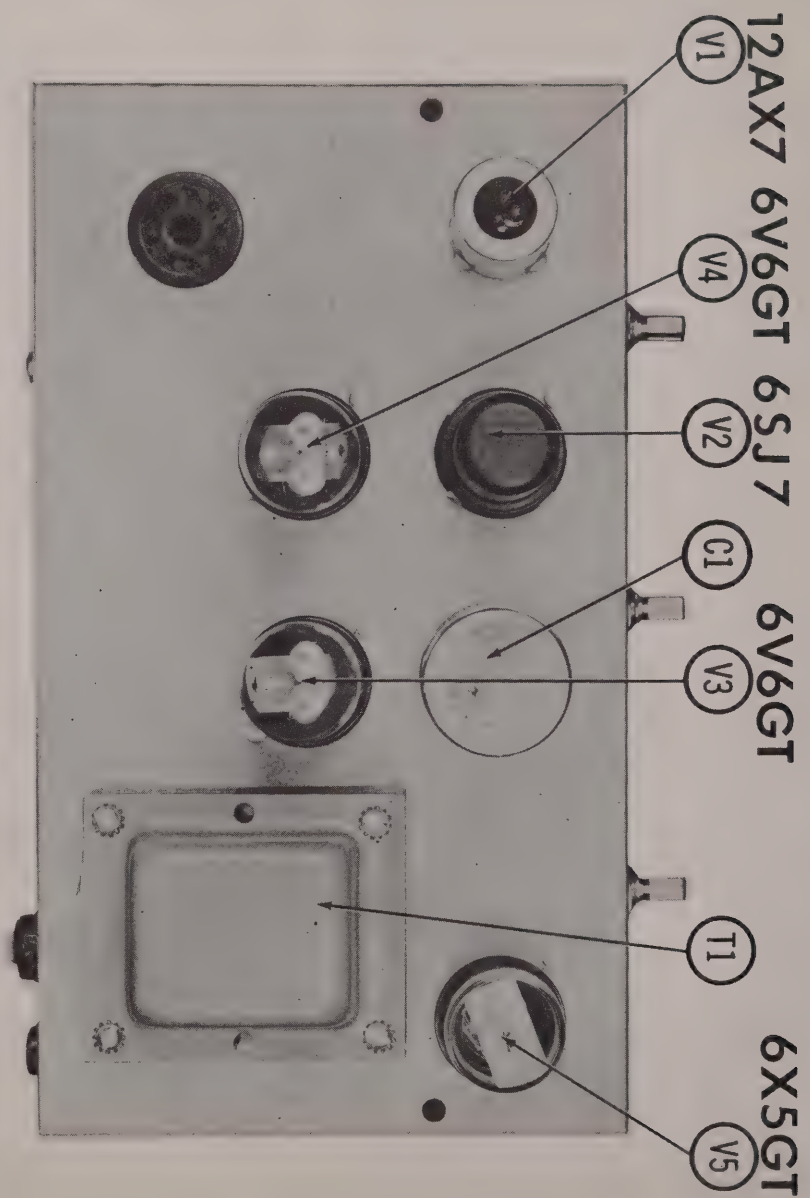
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		NEWCOMB PART No.	NOTES
	OHMS	WATT		
R4	18meg			
R5	560K			
R6	330K			

ITEM No.	RATING		NEWCOMB PART No.	NOTES
	OHMS	WATT		
R7	330K			
R8	10meg			
R9	560K			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	NEWCOMB PART No.	NOTES
R10	3.3meg			
R11	120K			
R12	100Ω			
R13	18meg			
R14	560K			
R15	560K			

ITEM No.	RATING OHMS	RATING WATT	NEWCOMB PART No.	NOTES
R16	8200Ω			
R17	300Ω 5%	2		
R18	560K			
R19	2200Ω	1		
R20	56K			

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA NEWCOMB PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No	Thordarson PART No.	Triad PART No.
T1	117V @ .47A	600 VCT @ .060A	6.3VCT @ 2.1A	TR-128	22R02			PM8407	22R02	R-5B

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA NEWCOMB PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6300Ω CT	500Ω Taps @ 16Ω, 8Ω, 4Ω	TR-170						S-28X	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA NEWCOMB PART No. FUSE	NEWCOMB PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	1A 250V S/B			313001, (3AG 1A 125V S/B)	341001	MDL 1	HKP

CABINETS & CABINET PARTS

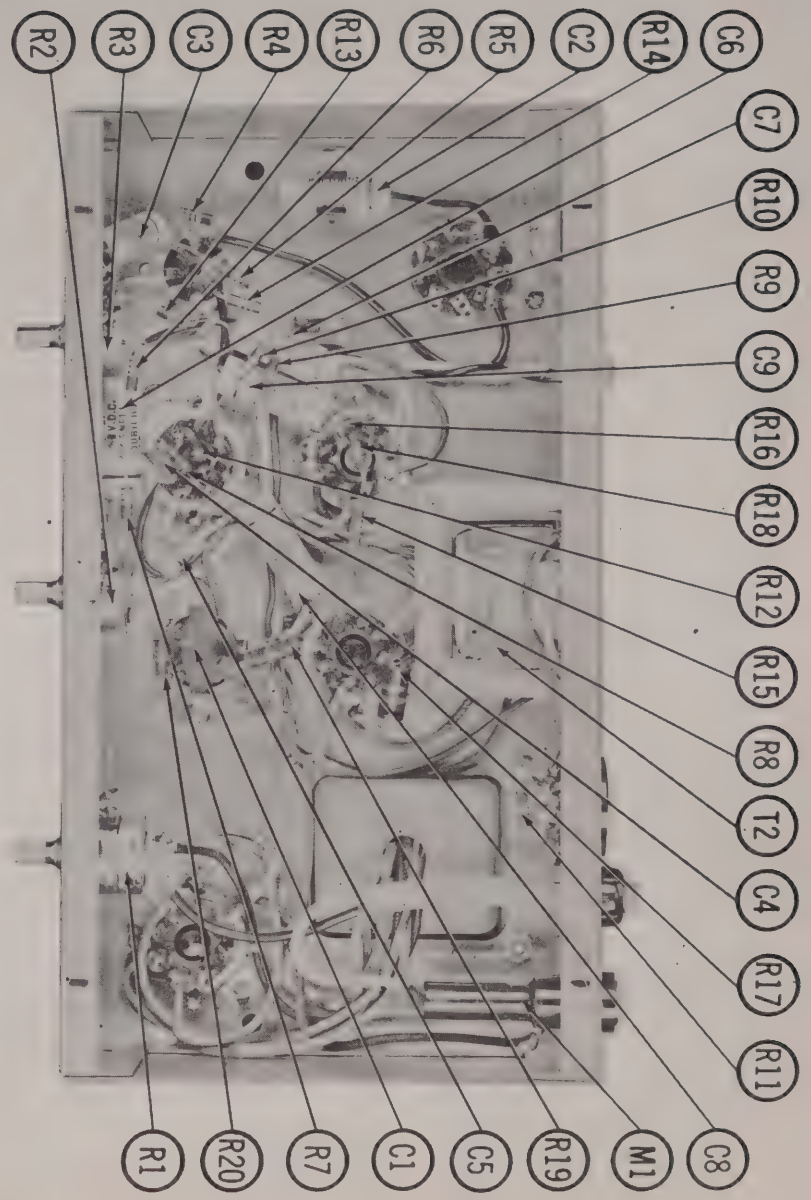
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

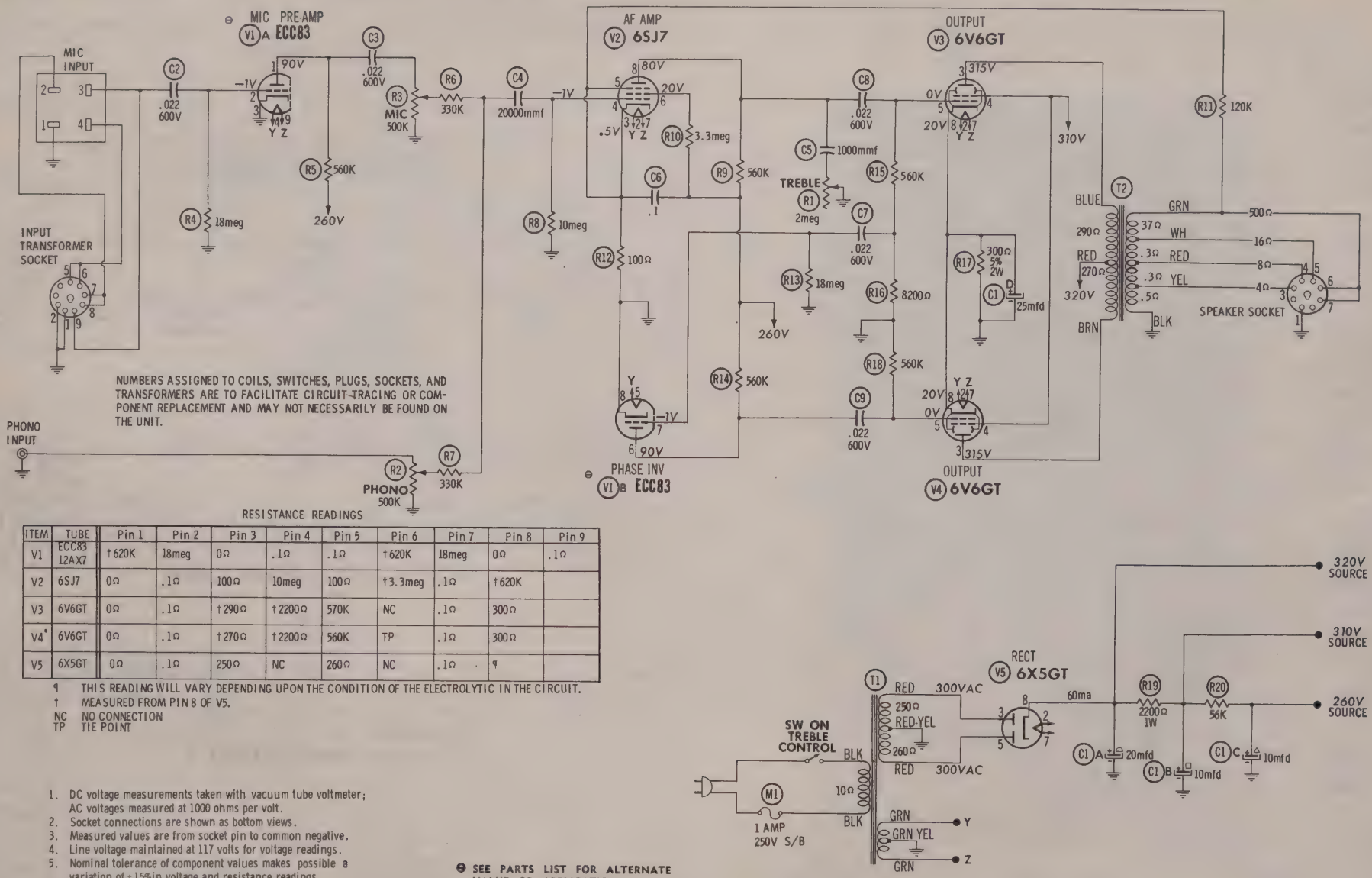
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83 12AX7	†620K	18meg	0Ω	.1Ω	.1Ω	†620K	18meg	0Ω	.1Ω
V2	6SJ7	0Ω	.1Ω	100Ω	10meg	100Ω	†3.3meg	.1Ω	†620K	
V3	6V6GT	0Ω	.1Ω	†290Ω	†2200Ω	570K	NC	.1Ω	300Ω	
V4*	6V6GT	0Ω	.1Ω	†270Ω	†2200Ω	560K	TP	.1Ω	300Ω	
V5	6X5GT	0Ω	.1Ω	250Ω	NC	260Ω	NC	.1Ω	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V5.
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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NEWCOMB MODEL E-10A

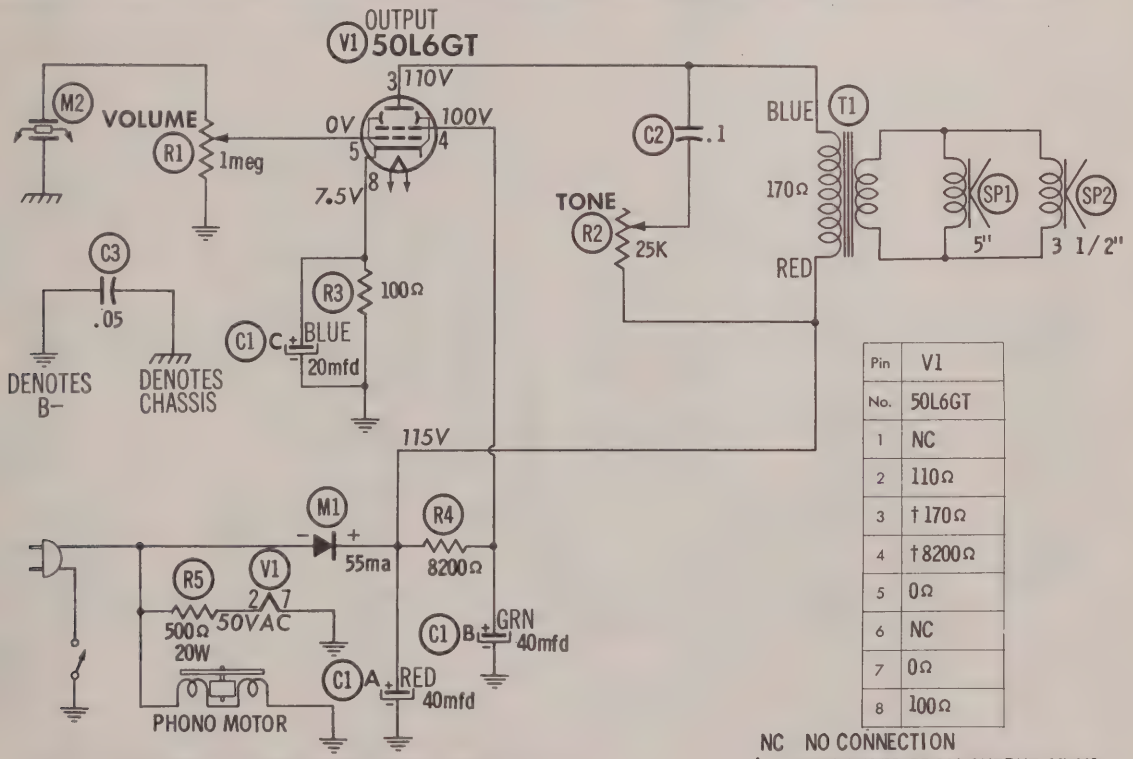
PHOTOFACT* Folder

OLYMPIC
MODEL C44B

OLYMPIC
MODEL C44B

TRADE NAME	Olympic Model C44B
MANUFACTURER	Olympic Radio & Tel. Corp., 34-01 38th Ave., Long Island City 1, N. Y.
TYPE SET	AC Operated One Tube Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 28 Watts, .30 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SIMILAR MONARCH UA8 — PHOTOFACT SET 381 FOLDER 11



Pin	V1
No.	50L6GT
1	NC
2	110Ω
3	†170Ω
4	†8200Ω
5	0Ω
6	NC
7	0Ω
8	100Ω

NC NO CONNECTION
† MEASURED FROM OUTPUT OF M1

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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J134

SET 451 FOLDER 12

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Output	50L6GT	

ITEM No.	USE	TYPE	NOTES

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	OLYMPIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	150		PRS150V404020	BBRT44215	WT217	TDLT-4	TVA-3448	
B	40	150							
C	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	OLYMPIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.1	200			P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C3	.05	200			P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	BA811-2465	B-70	A47-1meg-Z	Q13-137	U53	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	25K	½	BA811-2531	B-26	A47-25K-W	Q13-120	U28A	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		OLYMPIC PART No.	NOTES
	OHMS	WATT		
R3	100Ω			
R4	8200Ω			

ITEM No.	RATING		OLYMPIC PART No.	NOTES
	OHMS	WATT		
R5	500Ω	20		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1600Ω	1-2Ω	24A1							

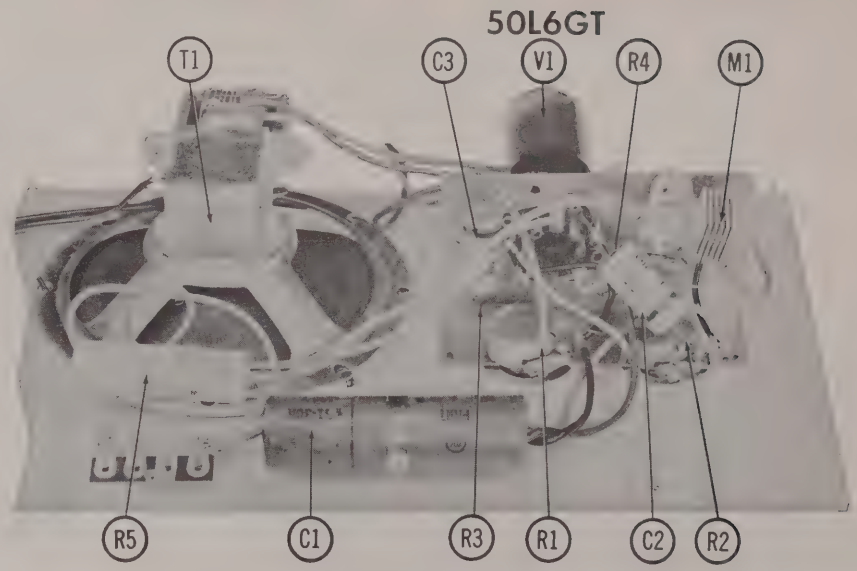
SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	OLYMPIC PART No.	QUAM PART No.	
SP1	5"	PM	3-4Ω		5A15	
SP2	3½"	PM	3-4Ω		3A07	

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	OLYMPIC PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.056A		1234AH① *HA154 ②	T065① SD-94②	65A① * T-4 ②		① Selenium Type ② Silicon Type * Add 10Ω series resistor

CHASSIS BOTTOM VIEW



PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	OLYMPIC PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M2		420-TS or 420-TB	N8-1 and N8-3	1	CRA-55 or CRA-55D and CRA-55LP or CRA-55LPD	

ASTATIC AND JENSEN NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	OLYMPIC PART No.	JENSEN PART No.	WALCO PART No.	
M3		† CRA-55 or ♦ CRA-55D and † CRA-55LP or ♦ CRA-55LPD	W-64S † or W-64D ♦ and W-64MGS † or W-64MGD ♦	† Jewel ♦ Diamond

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

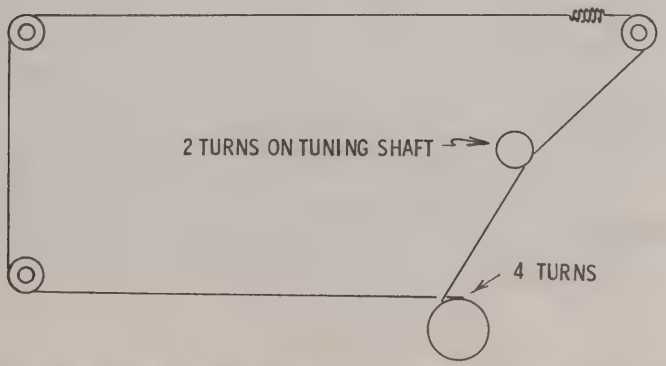
OLYMPIC-CONTINENTAL MODEL GB374

OLYMPIC-CONTINENTAL
MODEL GB374

TRADE NAME	Olympic-Continental Model GB374		
MANUFACTURER	Olympic Radio & Tel. Corp., 34-01 38th Ave., Long Island City 1, N. Y.		
TYPE SET	AC Operated 8 Tube FM-BC-SW Receiver With 4 Speed Automatic Record Changer		
POWER SUPPLY	105-120 Volts AC, 60 Cycles (or) 200-230 Volts AC, 50 Cycles	RATING	70 Watts, . 65 Amp. @ 117 Volts AC (FM)
		FREQ. MOD.	88 - 108MC
TUNING RANGE	BROADCAST 550 - 1600KC	SHORTWAVE	6 - 18MC

FOR SERVICE INFORMATION ON RECORD CHANGER PART #RX25907-1 - SEE SIMILAR MONARCH UA8 - PHOTOFACT SET 381 FOLDER 11

DIAL CORD STRINGING



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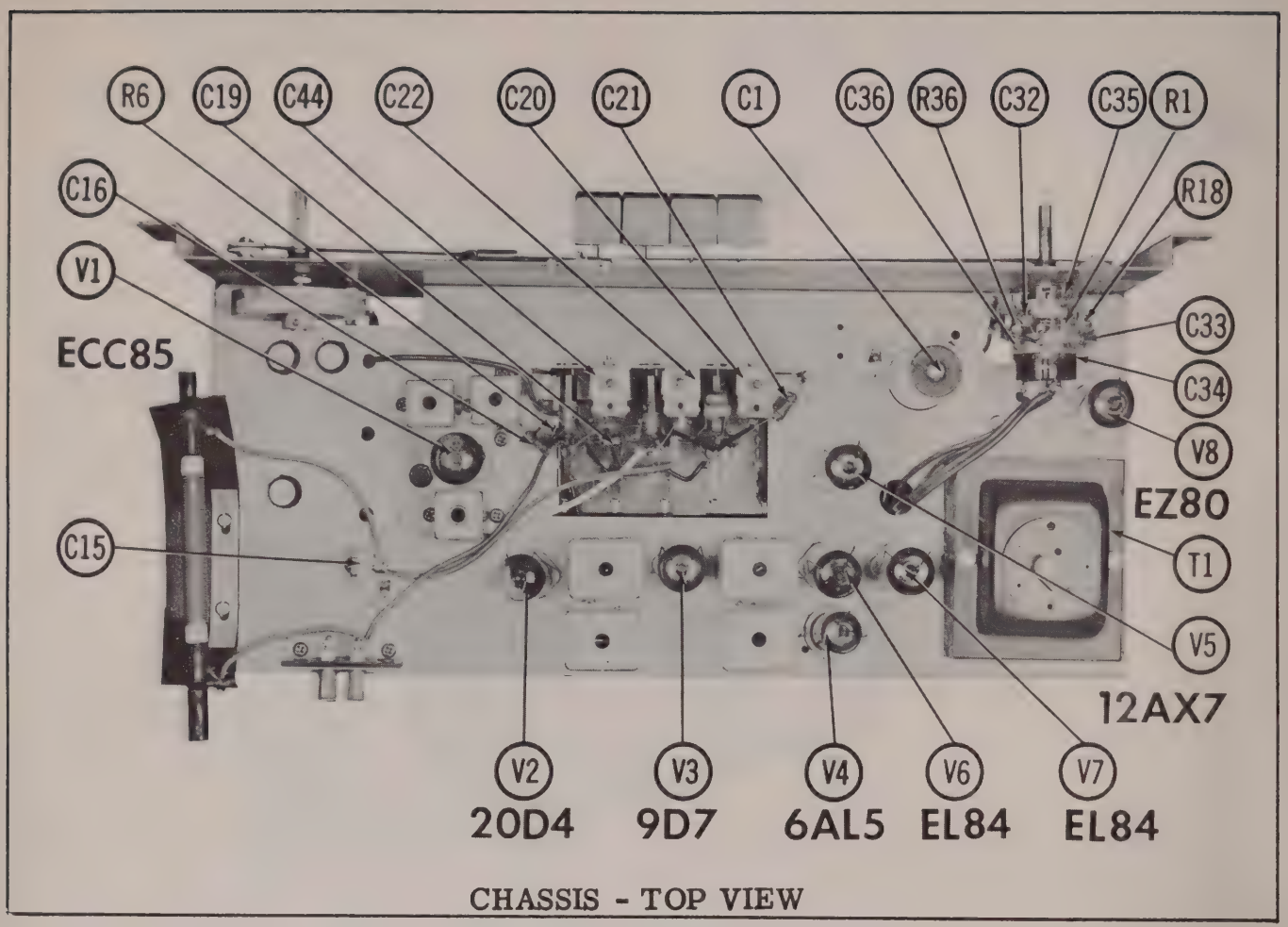
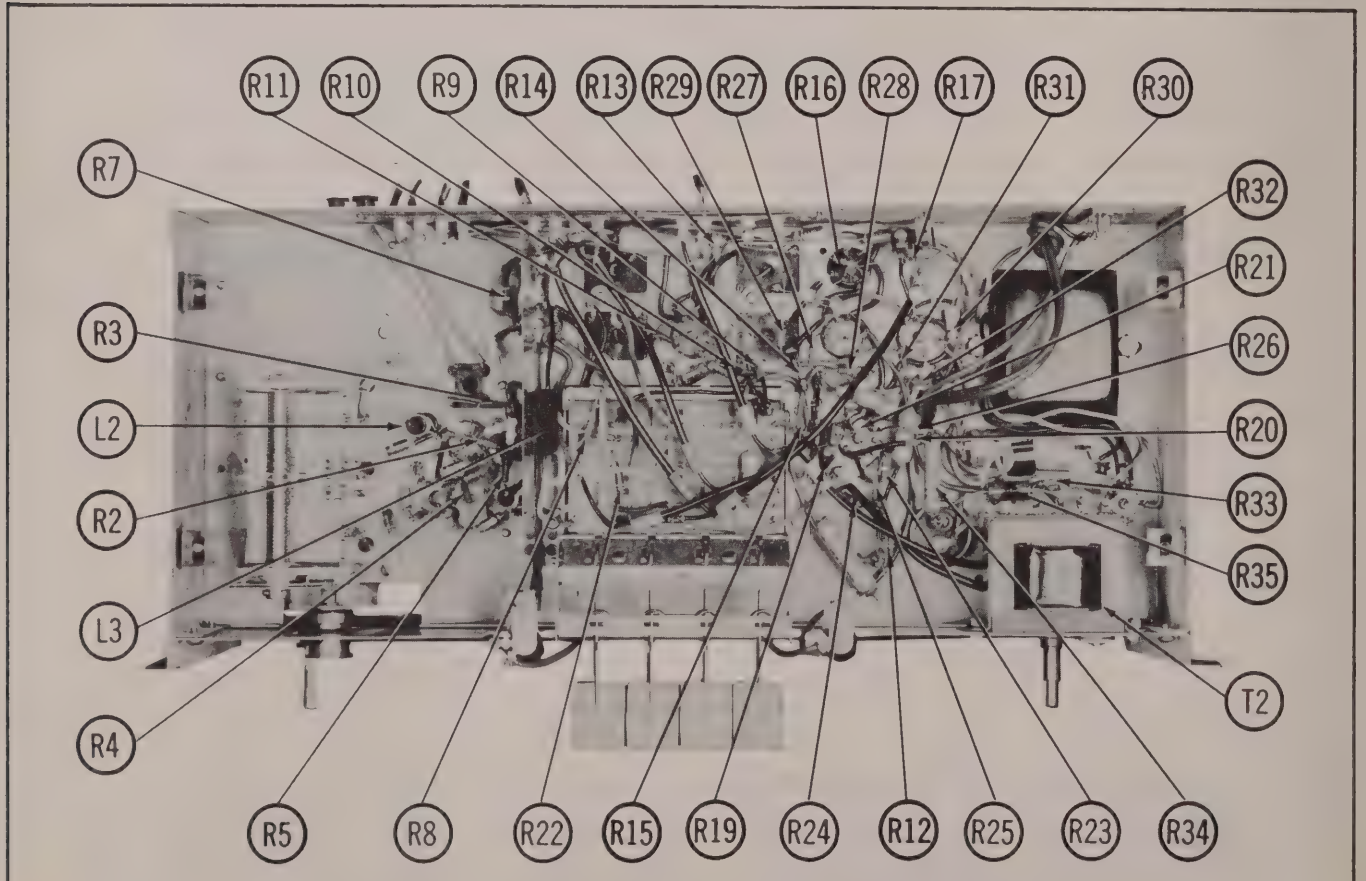
J112

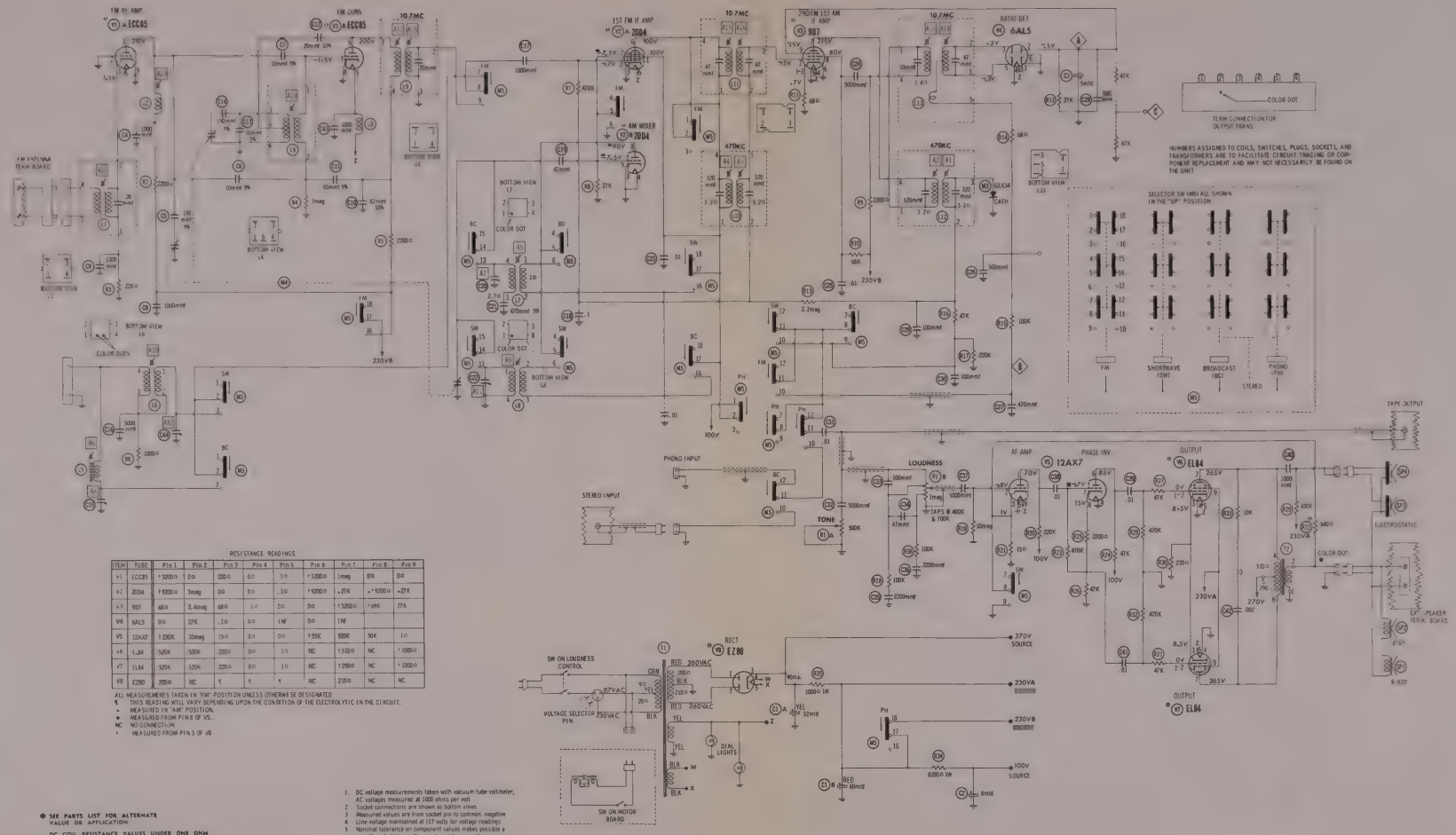
SET 451 FOLDER 13



CHASSIS - TOP VIEW



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85	¶ 3200Ω	0Ω	220Ω	0Ω	1Ω	¶ 3200Ω	1meg	0Ω	0Ω
V2	2D24	¶ 9200Ω	3meg	0Ω	0Ω	.1Ω	¶ 9200Ω	.27K	▪ ¶ 9200Ω	.27K
V3	6D7	68Ω	2.4meg	68Ω	1Ω	0Ω	0Ω	¶ 3200Ω	¶ 69K	27K
V4	6AL5	0Ω	27K	.1Ω	0Ω	INF	0Ω	INF		
V5	12AX7	¶ 230K	10meg	150Ω	0Ω	0Ω	¶ 55K	580K	50K	1Ω
V6	EL84	520K	520K	220Ω	0Ω	1Ω	NC	¶ 330Ω	NC	▪ 1000Ω
V7	EL84	520K	520K	220Ω	0Ω	1Ω	NC	¶ 290Ω	NC	▪ 1000Ω
V8	EZ80	2000Ω	NC	¶	¶	¶	NC	210Ω	NC	NC

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
▪ MEASURED IN "AM" POSITION.
● MEASURED FROM PIN 8 OF V5.
NC NO CONNECTION
▪ MEASURED FROM PIN 3 OF V8

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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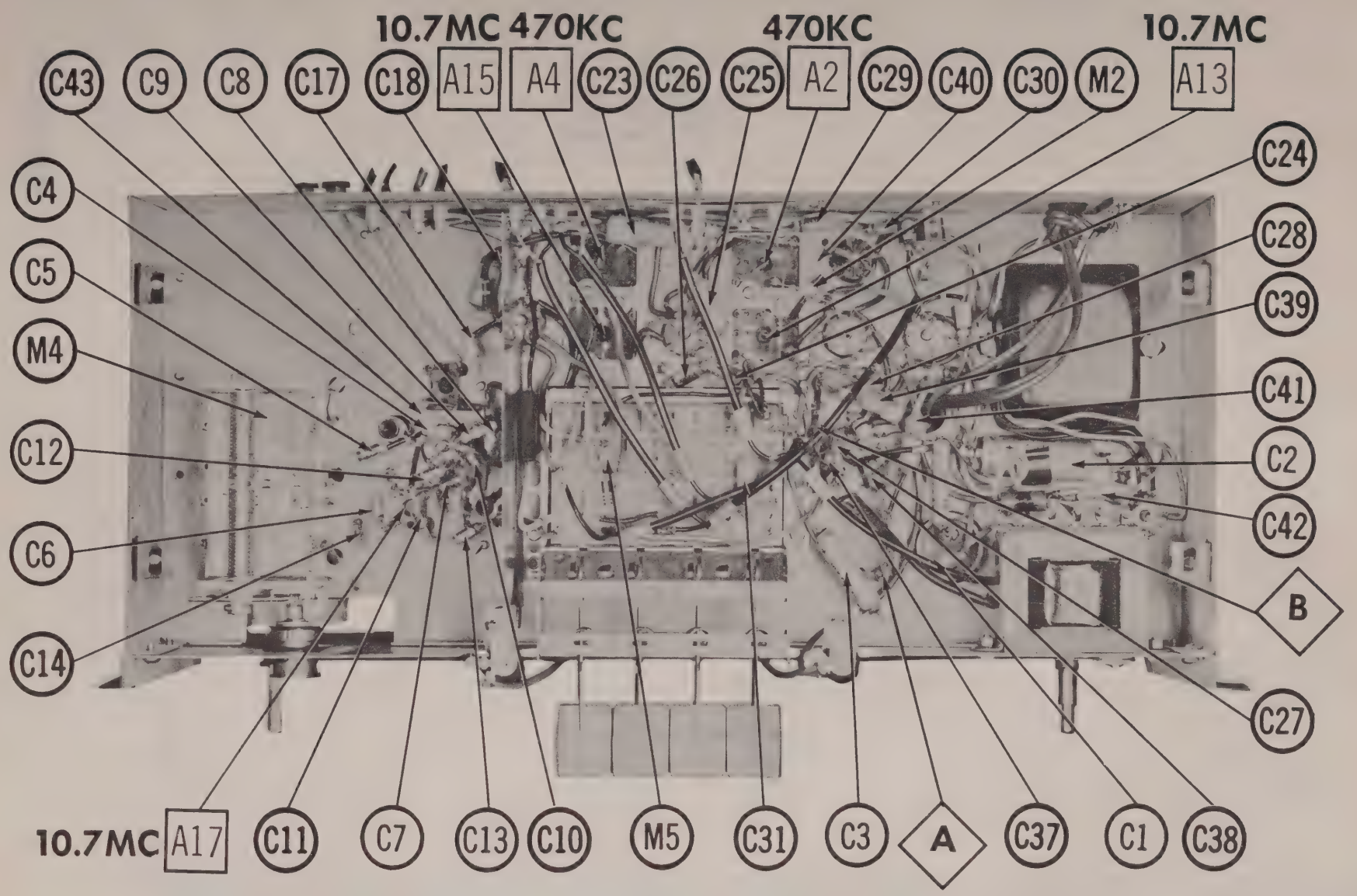
OLYMPIC-CONTINENTAL MODEL GB374



CHASSIS BOTTOM VIEW - CAPACITOR, MISC. & ALIGN. IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Suggested Alignment Tools:

A1, A2, A3, A4, A5, A9, A10, A19, A20, A21 ... GENERAL CEMENT #8282, 8606, 8606L, 9091
WALSCO #2526, 2541, 2543, 2544

A7, A8, A11, A12 ..... GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8278, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537

A13, A14, A15, A16, A17, A18 ..... GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 2 (grid) of AM Mixer (V2). Low side to chassis.	470KC (400∿ Mod.)	BC	600KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	600KC	"	600KC	"	A5, A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1500KC	"	1500KC	"	A7, A8	"
4.	400Ω Carbon Resistor	High side thru 400Ω to AM antenna socket. Low side to chassis.	6.5MC	SW	6.5MC	"	A9, A10	Adjust for maximum output.
5.	"	"	18MC	"	18MC	"	A11, A12	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (±1%) resistors in series from point (A) to chassis. The junction of these two resistors is alignment point (C) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	.1mfd	High side to pin 2 (grid) of 2nd FM IF (V3). Low side to chassis.	10.7MC (Unmod.)	FM	98MC	DC probe to point (A). Common to chassis.	A13	Adjust for maximum deflection.
7.	"	"	"	"	"	DC probe to point (B). Common to point (C).	A14	Adjust for zero reading. A positive and and negative reading will be obtained on either side of the correct setting.
8.		Loop of 2 turns around FM Converter Tube (V1).	"	"	"	DC probe to point (A). Low side to chassis.	A15, A16, A17, A18	Adjust for maximum deflection.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6.		Loop of 2 turns around FM Converter Tube (V1).	10.7MC (450KC Swp)	FM	98MC	Vert. Amp. to point (A). Low side to chassis.	A13, A15, A16, A17, A18	Disconnect stabilizing capacitor C3. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
7.		"	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A14	Reconnect stabilizing capacitor C3. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A13 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
9.	300Ω Carbon Resistor	Across FM antenna sockets with 300Ω in series with high side.	98MC	FM	98MC	Across voice coil	A19, A20, A21	Adjust for maximum output.

FIG. 1

FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amp. - FM Conv	ECC85	6AQ8 *
V2	1st FM IF Amp. - AM Mixer - AM Osc.	20D4	6AJ8 *
V3	2nd FM IF-1st AM IF Amp.	9D7	6BY7 *
V4	Ratio Detector	6AL5	
V5	AF Amp. - Phase Inv.	12AX7	
V6	Output	EL84	6BQ5 *
V7	Output	EL84	6BQ5 *
V8	Rectifier	EZ80	6V4 *

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA OLYMPIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	32	300	COE25272	PRS450V5030	BBRT0185	TCD2302		TVAS-2585 *	
B	60	300							
C2	8	200	COE25273	PRS250V8	BBR8-250	TC51	TD-8-250	TVA-1503	
C3	5	50	COE25270	PRS50V5	BBR5-50	TT50X5	TD-5-50	TVA-1303	

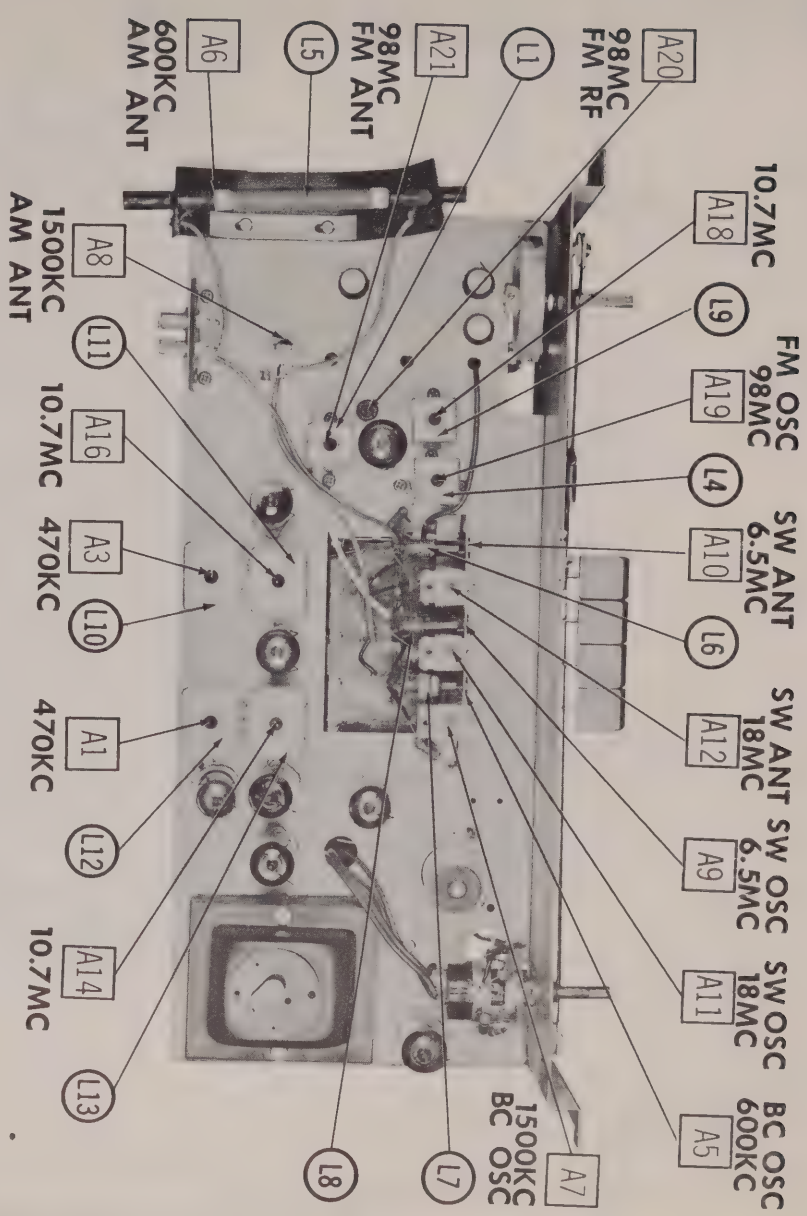
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA OLYMPIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	1000			M15/304	SI 1000	D6-102	BYA10D1M	UC-521	5HK-D1	
C5	150		5%	M15/227	1469-00015	TCZ-150	22R5T15	MCE-236	MS-315	
C6	10		5%	M15/395	1469-00001	TCZ-10	22R5Q1	MCE-215	MS-410	
C7	10		5%	M15/395	1469-00001	TCZ-10	22R5Q1	MCE-215	MS-410	
C8	1000			M15/304	SI 1000	D6-102	BYA10D1M	UC-521	5HK-D1	
C9	1000			M15/304	SI 1000	D6-102	BYA10D1M	UC-521	5HK-D1	
C10	82		10%	M15/398	1469-000082	TCZ-82	22R5Q82		MS-482	
C11	10		5%	M15/395	1469-00001	TCZ-10	22R5Q1	MCE-215	MS-410	
C12	20		10%	M15/396	1469-00002	D6-200	22R5Q2		MS-420	
C13	10		5%	M15/395	1469-00001	TCZ-10	22R5Q1	MCE-215	MS-410	
C14	150		5%	M15/227	1469-00015	TCZ-150	22R5T15	MCE-236	MS-315	
C15				M126/202						
C16	5000			M15/298	SI 5000	D6-502	BYA10D5	UC-525	5HK-D5	
C17	1000			M15/304	SI 1000	D6-102	BYA10D1M	UC-521	5HK-D1	
C18	.1	350		M15/203	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C19	47			M15/343	1469-000047	DD-470	22R5Q47	UC-5447	MS-447	
C20				M126/202						
C21	470		5%	M15/248	1469-00047	TCZ-470	22R5T47		MS-347	
C22				M126/202						
C23	.01	500		M15/223	P688N-01	DD-103	CUB6S1	GEM-611	6TM-S1	
C24	5000			M15/298	SI 5000	DD-502	BYA10D5	UC-525	5HK-D5	
C25	.01	500		M15/223	P688N-01	DD-103	CUB6S1	GEM-611	6TM-S1	
C26	300			M15/368	1469-0003	DD-301	22R5T3	MCE-241	MS-330	
C27	470			M15/378	SI 470	D6-471	BYA10T47	UC-5347	5GA-T47	
C28	300			M15/368	1469-0003	DD-301	22R5T3	MCE-241	MS-330	
C29	100			M15/255	1469-0001	DD-101	22R5T1	MCE-235	MS-310	
C30	100			M15/255	1469-0001	DD-101	22R5T1	MCE-235	MS-310	
C31	.01	500		M15/223	P688N-01	DD-103	CUB6S1	GEM-611	6TM-S1	
C32	5000			M15/298	SI 5000	D6-502	BYA10D5	UC-525	5HK-D5	
C33	100			M15/255	1469-0001	DD-101	22R5T1	MCE-235	MS-310	
C34	47			M15/343	1469-000047	DD-470	22R5Q47		MS-447	
C35	2200			M15/357	SI 2200	D6-222	BYA10D22	UC5222	5HK-D22	
C36	2200			M15/357	SI 2200	D6-222	BYA10D22	UC5222	5HK-D22	
C37	5000			M15/298	SI 5000	D6-502	BYA10D5	UC-525	5HK-D5	
C38	.01	500		M15/223	P688N-01	DD-103	CUB6S1	GEM-611	6TM-S1	
C39	.01	500		M15/223	P688N-01	DD-103	CUB6S1	GEM-611	6TM-S1	
C40	1000			M15/304	SI 1000	D6-102	BYA10D1M	UC-521	5HK-D1	
C41	.01	500		M15/223	P688N-01	DD-103	CUB6S1	GEM-611	6TM-S1	
C42	.002	500		M15/264	P688N-002	DD-202	CUB6D2	GEM-622	6TM-D2	
C43	1000			M15/304	SI 1000	D6-102	BYA10D1M	UC-521	5HK-D2	
C44				M45/206						

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A B C	500K 1meg Switch	½ ½	PTE25246	FL-41 R2-66 KR-2		† QJ1098	■ UE3964	Tone Loudness, Taps ② 400K, Power On-Off 700K

† "Concentrikit" Equivalent: K-2 Kit with base elements and shafts: B13-133, P1-030 (Panel)
B18-137XX, R9-112 (Rear)
76-2 (Switch)

■ "STA-LOC" Equivalent: FA55A, OS937, RU16DT754, IS1375, US42.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		OLYMPIC PART No.	NOTES
	OHMS	WATT		
R2	2200Ω		M45/280	
R3	220Ω		M45/205	
R4	1meg		M45/206	
R5	2200Ω		M45/280	
R6	1000Ω		M45/290	
R7	470K		M45/210	
R8	27K		M45/218	
R9	2200Ω		M45/280	
R10	68K		M45/309	
R11	68Ω		M45/214	
R12	27K		M45/218	
R13	2. 2meg		M45/236	
R14	68Ω		M45/214	
R15	100K		M45/209	
R16	47K		M45/207	
R17	220K		M45/204	
R18	100K		M45/209	
R19	10meg		M45/288	

ITEM No.	RATING		OLYMPIC PART No.	NOTES
	OHMS	WATT		
R20	220K		M45/204	
R21	15Ω		M45/227	
R22	680Ω			Note 1
R23	470K		M45/210	
R24	47K		M45/207	
R25	2200Ω		M45/280	
R26	47K		M45/207	
R27	47K		M45/207	
R28	470K		M45/210	
R29	100K		M45/209	
R30	220Ω		M45/253	
R31	47K		M45/209	
R32	470K		M45/210	
R33	10K		M45/233	
R34	8200Ω	1	M45/333	
R35	1000Ω	1	M45/224	
R36	100K		M45/209	

Note 1. Some versions may use 330Ω in this application (Part #M45/211).

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		OLYMPIC PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Coil	TRE25242						
L2	FM RF Coil	CLE25254						
L3	Fil. Choke	CKE25260	19-1001	19-1001	BC-562	4604		
L4	FM Osc. Coil	CLE25253						
L5	Loopstick	LPE25259						
L6	SW Ant. Coil	CLE25252						
L7	BC Osc. Coil	CLE25255						
L8	SW Osc. Coil	CLE25251						
L9	1st FM IF	TRE25241						
L10	1st AM IF	TRE25239						
L11	2nd FM IF	TRE25237						
L12	2nd AM IF	TRE25240						
L13	Ratio Detector	TRE25238						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	220V Tap ② 117V ② .65A	520VCT ② .090A	6.3V ② .6A	TRE25244 ①						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V ② 3.8A									

① Type 4758, with plug.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	10K CT	6-8Ω	TRE25243	24S56 ①	A-2901 ①	AU-600 ①	A-3831 ①	24S56 ①	S-53X ①	① Use original frame.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	OLYMPIC PART No.	QUAM PART No.	
SP1	6" x10"	PM	3-4Ω	SKE25266		
SP2	4" x 7"	PM	3-4Ω	SKE25267		
SP3	2 1/4"	Electrostatic		SKE25268		
SP4	2 1/4"	Electrostatic		SKE25268		

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	OLYMPIC PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	PX25965	13-TB *				* Includes needle & mounting mechanism.
		81-TB *①				① For use in monaural versions.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	OLYMPIC PART No.	JENSEN PART No.	WALCO PART No.	
M2			20IDS * † ♦	* Includes cartridge † Jewel ♦ Diamond

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		OLYMPIC PART No.	CBS PART No.	SYLVANIA PART No.	
M3	GEX34	1NE25258			AM Detector

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M4	Tuning Cap.	CVE25271	4 Gang (AM Sections: Ant. 5-567mmf, Osc. 5-570mmf)
M5	Switch	SWE25274	Band Selector

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	KNE25247	Type 832 (1/4" Hole)
Knob	KNE25248	Type 829 (3/16" Hole)
Knob	KNE25249	Type 832 (3/16" Hole)
Knob	KNE25250	Type 829 (5/32" Hole)
Cabinet	CAE25269	Includes Back and Hardware
Pointer	POE25257	
Dial Scale	DLE25256	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

RCA VICTOR MODEL SHP14 (Ch. RS-175A)

RCA VICTOR MODEL
SHP14 (Ch. RS-175A)

RCA VICTOR MODEL
SHP14 (Ch. RS-175A)

TRADE NAME	RCA Victor Model SHP-14 (Ch. RS-175A)
MANUFACTURER	RCA Victor Radio & "Victrola" Div., Radio Corp. of America, Camden 8, N. J.
TYPE SET	AC Operated 5 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	105-125 Volts AC, 60 Cycles RATING 52 Watts, .58 Amp. @ 117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER RP-205H-2 - SEE RCA RP-205 SERIES - PHOTOFACT SET 358 FOLDER 10 OR RECORD CHANGER MANUAL RC-10

SET 451 FOLDER 14

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of J141

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Right Channel AF Amp.	6AU6	
V2	Right Channel Output	6AQ5A	

ITEM No.	USE	TYPE	NOTES
V3	Left Channel AF Amp.	6AU6	
V4	Left Channel Output	6AQ5A	
V5	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	▲30	350	106964	AFH4-06	D0144	FP444.8	TMT-96	TVL-4769.4	
B	■15	350					TD-25-25		
C	▲25	25							
D	25	25							
C2	4	10	106353	NP-PRS50VNP4		TC504			
C3	4	10	106353	NP-PRS50VNP4		TC504			

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	2200			77953	BPD-0022	DD-222	BYA10D22	B-222	5HK-D22	
C5	2200			77953	BPD-0022	DD-222	BYA10D22	B-222	5HK-D22	
C6	10000			73960	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C7	2200			77953	BPD-0022	DD-222	BYA10D22	B-222	5HK-D22	
C8	2200			77953	BPD-0022	DD-222	BYA10D22	B-222	5HK-D22	
C9	10000			73960	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	5meg	½	106961	B-88	AD47-5meg-S	Q11-141		Loudness, Left Channel
B	5meg	½		SR-88	Not Req.	M11-141	† UE3967	Loudness, Right Channel
C	Shaft			Not Req.	FS-3	Not Req.		
R2A	5meg	½	106961	B-88	AD47-5meg-S	Q11-141		Bass, Left Channel
B	5meg	½		SR-88	Not Req.	M11-141	† UE3967	Bass, Right Channel
C	Shaft			Not Req.	FS-3	Not Req.		
R3A	2meg	½	106962	B-76	AD47-2meg-S	Q13-139		Treble, Left Channel
B	2meg	½		SR-76	Not Req.	M13-139	ǂ	Treble, Right Channel
C	Shaft			Not Req.	FS-3	Not Req.		
R4	1500Ω	1(WW)	106963		39-1500		FL-1.5K	Balance, Left Channel
R5	1500Ω	1(WW)	106963		39-1500		FL-1.5K	Balance, Right Channel

† "STA-LOC" Equivalent: FA56A, RU56A, CS3500. ǂ "STA-LOC" Equivalent: FA26A, RU26A, CS3500.

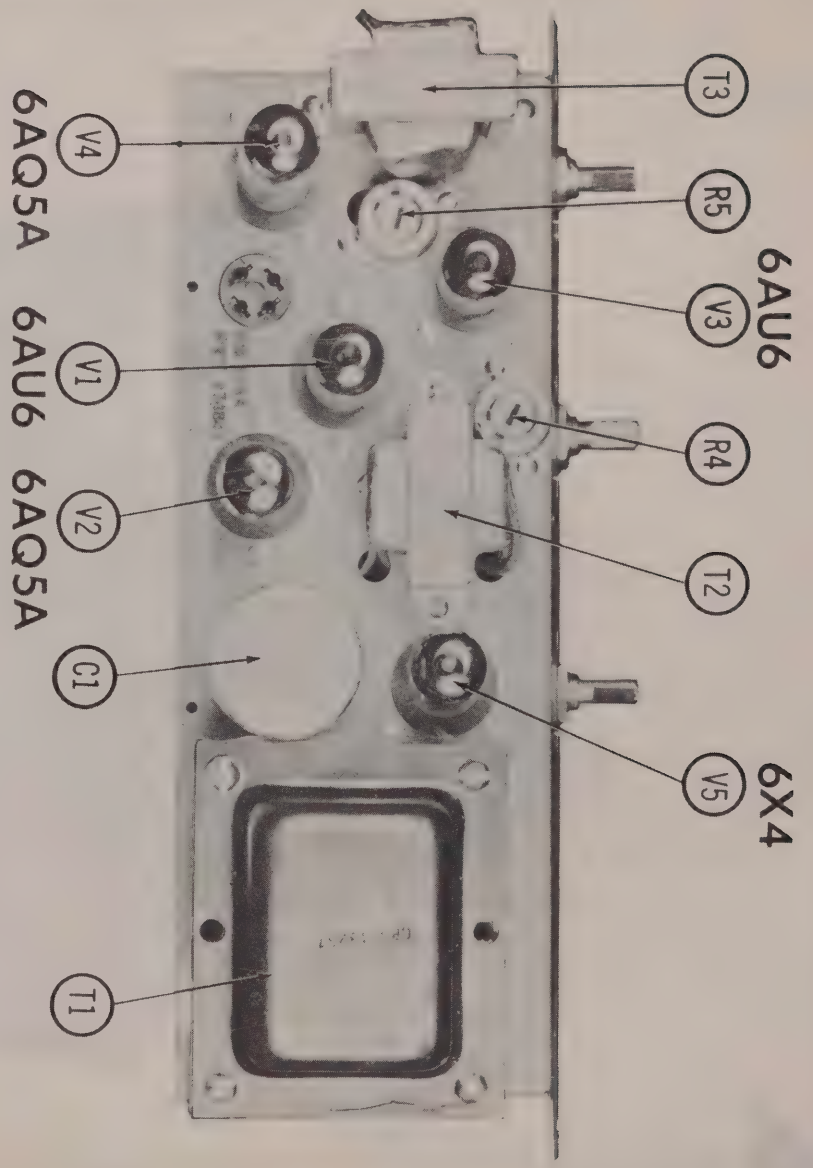
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R6	270K			
R7	10meg			
R8	560Ω			
R9	39K			
R10	270K			
R11	470K			
R12	330Ω	1		
R13	270K			
R14	10meg			

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R15	100K			
R16	27K			
R17	560Ω			
R18	39K			
R19	270K			
R20	470K			
R21	330Ω	1		
R22	100Ω	1		
R23	4700Ω			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .58A	520VCT @ .080A	6.3VCT @ 2.1A	106965	24R13	P-3052		PM8420	24R13	R-10B

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7500Ω	3-4Ω	104193	24S52	A-2931	AU-602	A-3878	24S52	S-7X	
T3	7500Ω	3-4Ω	104193	24S52	A-2931	AU-602	A-3878	24S52	S-7X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor PART No.	QUAM PART No.	
SP1	3½"	PM	6-8Ω	105395	3A15TZ6.4	Right Channel
SP2	6½"	PM	3-4Ω	100464	6A21	
SP3	3½"	PM	6-8Ω	105395	3A15TZ6.4	Left Channel
SP4	6½"	PM	3-4Ω	100464	6A21	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	RCA Victor PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	106711 †	13-TB *				† Includes needle. * Includes needle and mounting mechanism.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	RCA Victor PART No.	JENSEN PART No.	WALCO PART No.	
M2	(78RPM)	* M76 or ♦ M76D		* Metal † Jewel ♦ Diamond
	(LP)	† M76X or ♦ M76XD		

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M3	Switch	76301	Power Off-On

CABINETS & CABINET PARTS

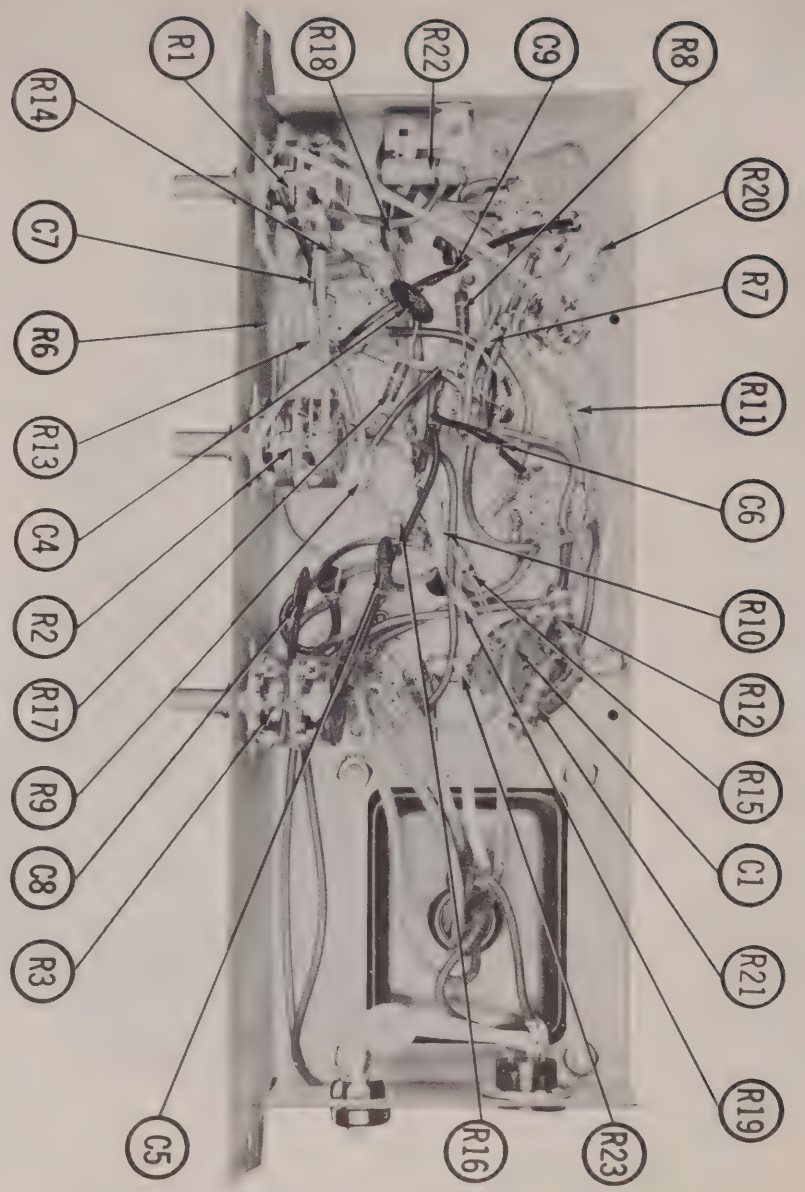
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

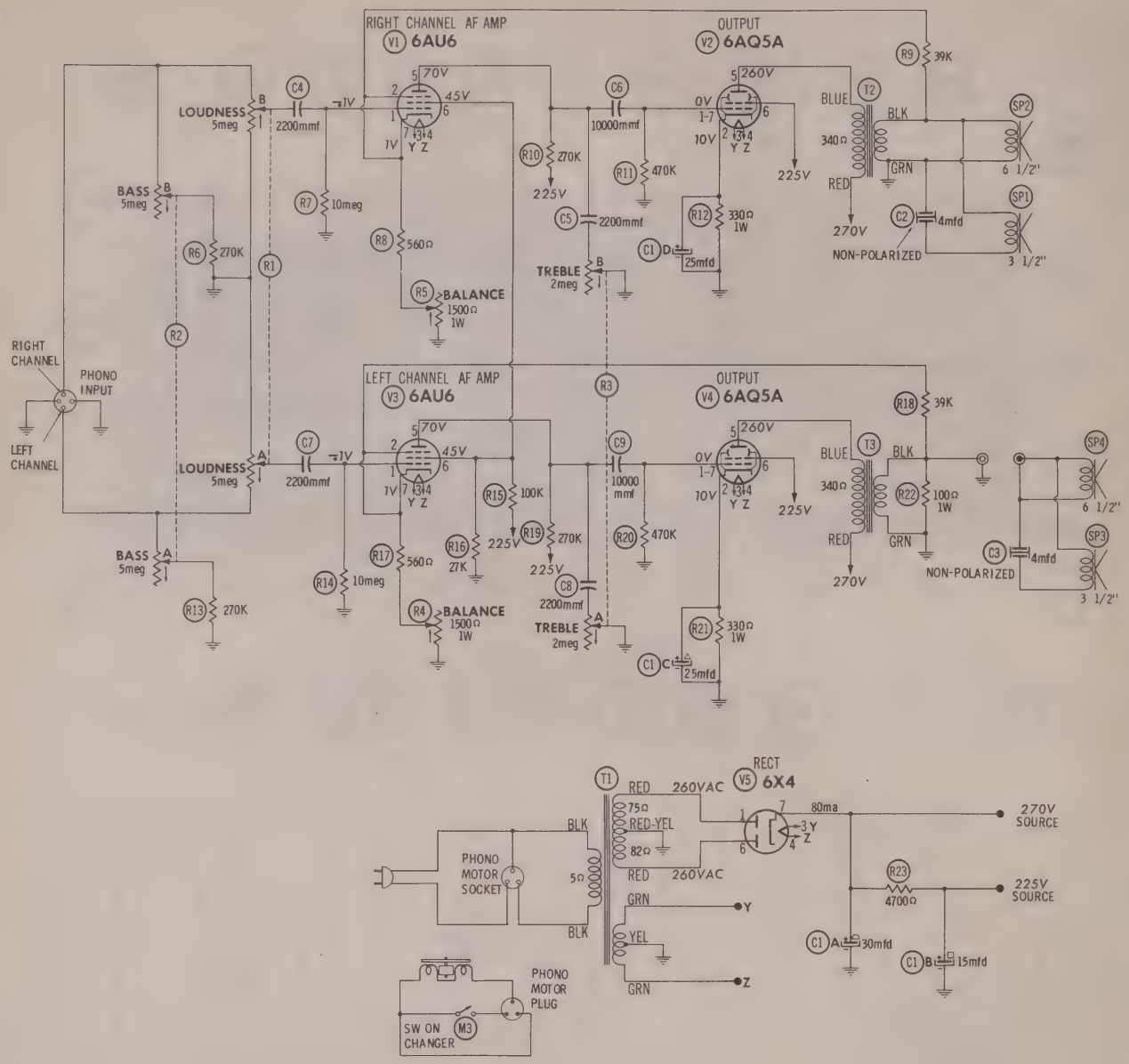
NAME	PART NO.	DESCRIPTION
Knob	106175	Control, 3 used
Cabinet	X4513	Less Front Grille Assembly
Grill Assembly	X5054	
Handle	104657	Less Supports
Supports	104685	Handle

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS BOTTOM VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	6AU6	10meg	1100Ω	.1Ω	.1Ω	†275K	†105K	1100Ω
V2	6AQ5A	470K	330Ω	.1Ω	.1Ω	†340Ω	†4700Ω	470K
V3	6AU6	10meg	1100Ω	.1Ω	.1Ω	†275K	†105K	1100Ω
V4	6AQ5A	470K	330Ω	.1Ω	.1Ω	†340Ω	†4700Ω	470K
V5	6X4	75Ω	NC	.1Ω	.1Ω	NC	82Ω	¶

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION

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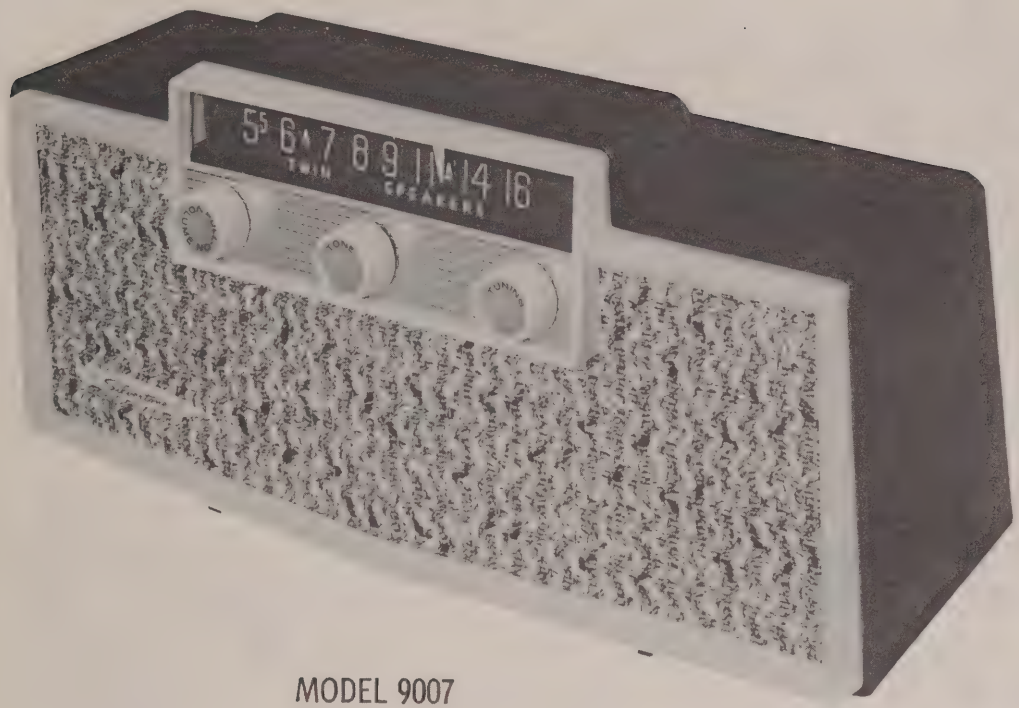
RCA VICTOR MODEL SHP14 (Ch. RS-175A)

PHOTOFACT* Folder with CIRCUITRACE*

SILVERTONE MODELS 9007, 9008, 9009, 9010 (Ch. 132.45600)

SILVERTONE MODELS 9007, 9008, 9009, 9010 (Ch. 132.45600)



MODEL 9007

TRADE NAME	Silvertone Models 9007, 9008, 9009, 9010 (Ch. 132.45600)
MANUFACTURER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois
TYPE SET	AC-DC Operated 5 Tube AM Receiver
POWER SUPPLY	110-120 Volts AC-DC — RATING 29 Watts, .31 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1650KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1, A2, A3, A4, A6 ..... GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

A5, A7 ..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05mfd	High side to pin 7 (grid) of 12BE6 (V1). side to chassis.	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	600KC	600KC	"	A6	Adjust for maximum output.
4.		"	1400KC	1400KC	"	A7	"

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of J161

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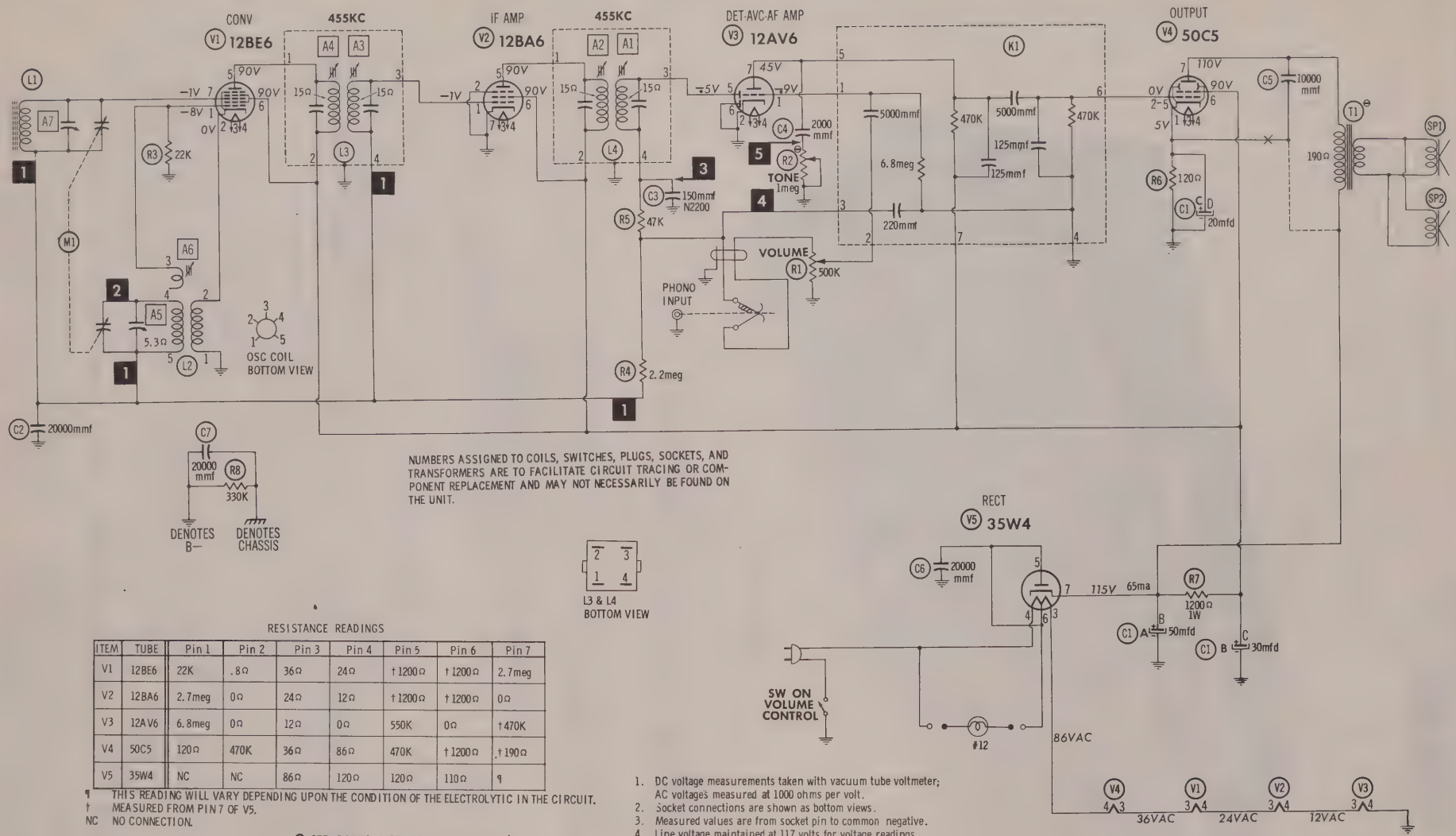
SET 451 FOLDER 15



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.8Ω	36Ω	24Ω	†1200Ω	†1200Ω	2.7meg
V2	12BA6	2.7meg	0Ω	24Ω	12Ω	†1200Ω	†1200Ω	0Ω
V3	12AV6	6.8meg	0Ω	12Ω	0Ω	550K	0Ω	†470K
V4	50C5	120Ω	470K	36Ω	86Ω	470K	†1200Ω	†190Ω
V5	35W4	NC	NC	86Ω	120Ω	120Ω	110Ω	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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SILVERTONE MODELS 9007, 9008, 9009, 9010 (Ch. 132.45600)

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amp.	12BA6	
V3	Det.-AVC-AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rect.	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	Silvertone PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	50	150	44328-2	PRS150/25V	BBRT5315C	TCT3107	TDLT-15		
B	30	150		5030/20					
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	Silvertone PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	20000			43674-2	BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C3	150		N2200	43957-2						
C4	2000			43674-4	BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C5	10000			43674-1	BPD-01	DD-103	BYA10D1	B-110	5HK-S1	
C6	20000			43674-2	BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C7	20000			43674-2	BPD-02	DD-203	BYB6S2	B-120	5HK-S2	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Silvertone PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	44500-6				PP55A	Volume
B	Switch						Not Req.	Power On-Off (Push-Pull)
R2A	1meg	½	44500-7	B-70	A47-1meg-Z	Q13-137	U53	Tone, Note 1
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

Note 1. Some versions may use 500K in this application (Part #44500-17).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Silvertone PART No.	NOTES
	OHMS	WATT		
R3	22K		43687-223	
R4	2.2meg		43687-225	
R5	47K		43687-473	

ITEM No.	RATING		Silvertone PART No.	NOTES
	OHMS	WATT		
R6	120Ω		43689-121	
R7	1200Ω	1	43688-122	
R8	330K		43687-334	

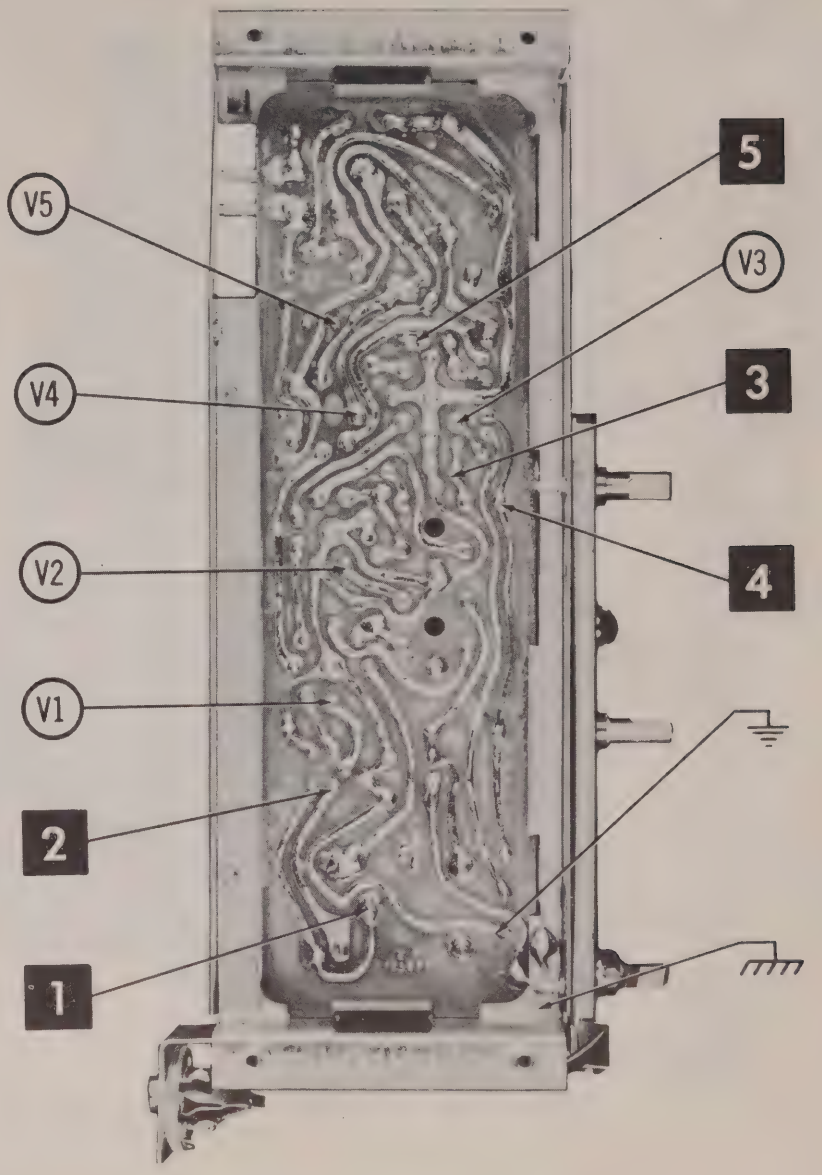
COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Silvertone PART No.	REPLACEMENT DATA	
K1	Audio-Det. Couplate	125mmf, 125mmf, 220mmf, 5000mmf, 5000mmf, 470K, 470K, 6.8meg	43743-2	Aerovox Centralab Sprague	PA-512-3 PC-158 DT-5

PRINTED BOARD

A Howard W. Sams CIRCUITRACE* Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		Silvertone PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	45534-1						
L2	Osc. Coil	43644-1						
L3	Input IF	44282-1	16-6780	16-6780	BC-356	13-PC9	RF-4	
L4	Output IF	44282-1	16-6780	16-6780	BC-357	13-PC9	RF-4	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Silvertone PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2700Ω	3-4Ω	42700-20 ①	Z1101	A-3025	AU-605	A-3332	24S53	S-12X	① Alternate Part #42700-21

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Silvertone PART No.	QUAM PART No.	
SP1	4"	PM	6-8Ω	46185-2	4A15	
SP2	4"	PM	6-8Ω	46185-1	4A15	

MISCELLANEOUS

ITEM No.	PART NAME	Silvertone PART No.	NOTES
M1	Tuning Capacitor Printed Board	45533-1 44902-1	Two Gang

CABINETS & CABINET PARTS

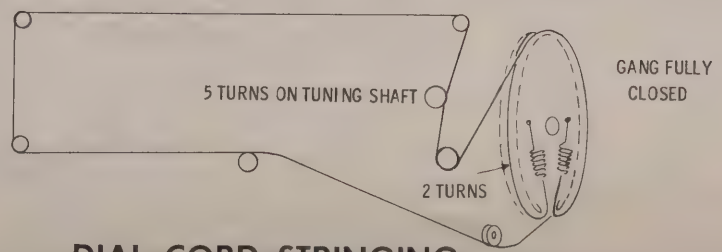
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	45827-67	Tuning
Knob	45829-67	Volume, Off-On
Knob	45828-67	Tone
Cabinet Front	45858-67	Includes Dial Crystal and Inlay
Cabinet Back	45855-48	Brown, Model 9007
Cabinet Back	45855-17	Ivory, Model 9008
Cabinet Back	45855-45	Ming Blue, Model 9009
Cabinet Back	45855-83	Coral, Model 9010

WIRING DATA

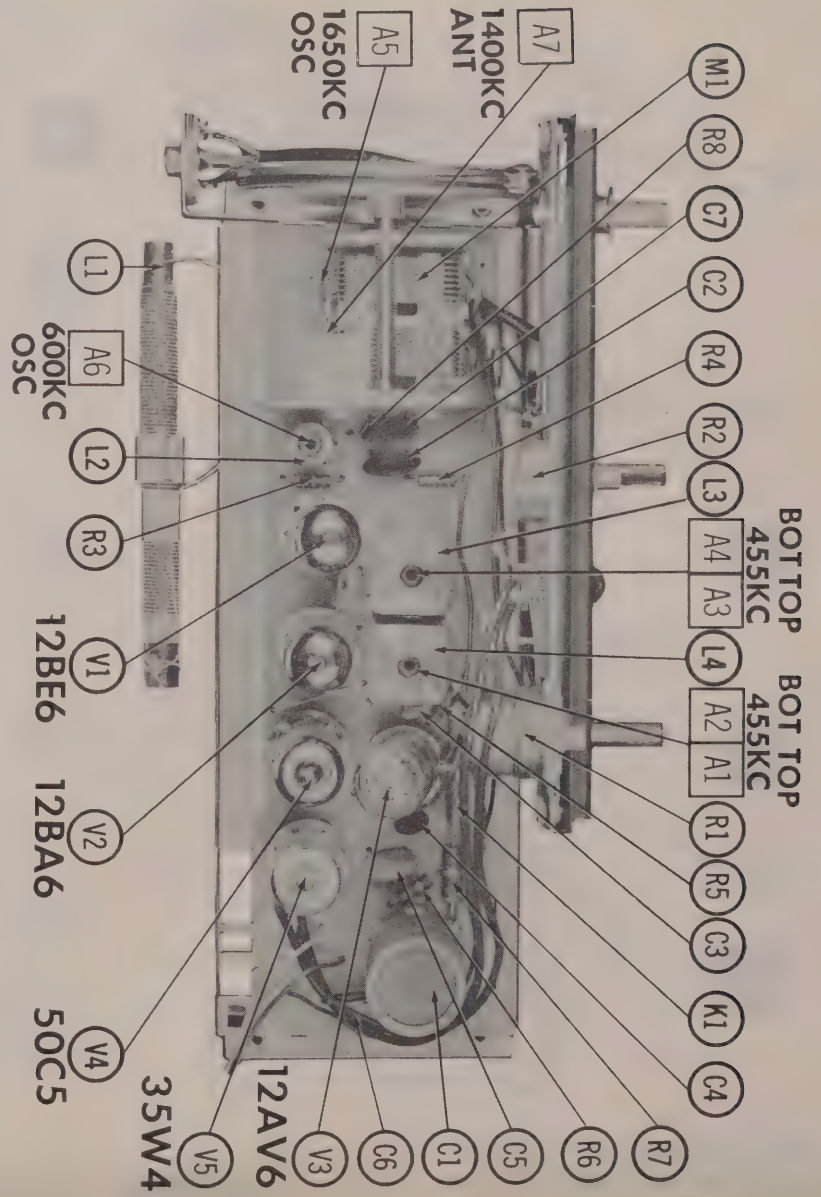
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



DIAL CORD STRINGING

CHASSIS—TOP VIEW



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EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

TOSHIBA MODEL 6TR-186

TOSHIBA MODEL 6TR-186

TOSHIBA MODEL 6TR-186

TRADE NAME	Toshiba Model 6TR-186
IMPORTER	Excel Corp. of America, 9 Rockefeller Plaza, New York 20, N. Y.
TYPE SET	Battery Operated Portable Transistorized AM Receiver
POWER SUPPLY	9 Volts DC
TUNING RANGE—BROADCAST	540 - 1600KC
RATING	7.6MA @ 6 Volts DC (No Signal, Min. Volume) 10MA @ 6 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:

A4, A5..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	1600KC	1600KC	"	A4	"
3.		"	1400KC	1400KC	"	A5	"

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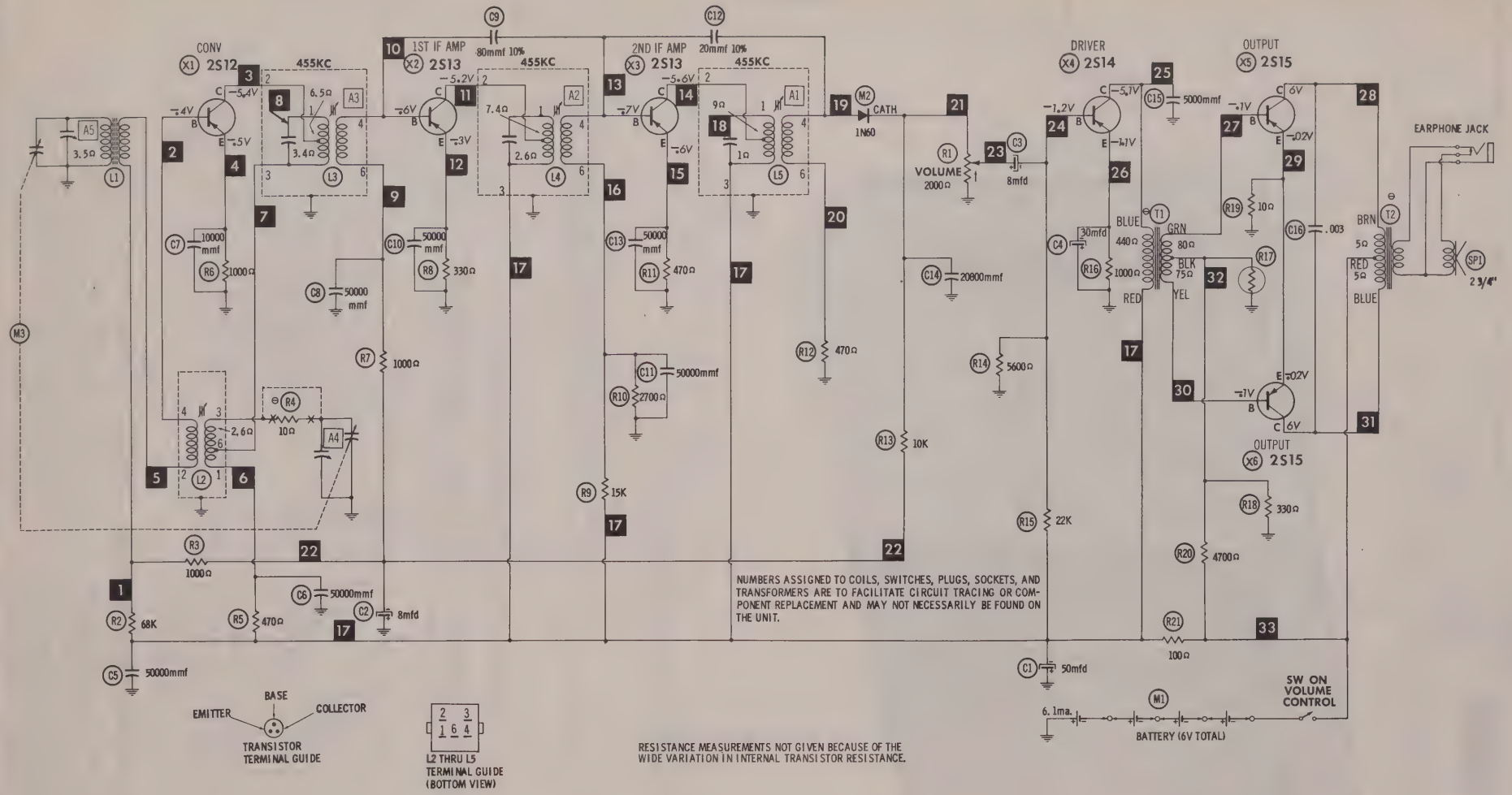
J118

SET 451 FOLDER 16



⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

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TOSHIBA MODEL 6TR-186

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2S12	Converter			2N486		PNP
X2	2S13	1st IF Amplifier			2N483		PNP
X3	2S13	2nd IF Amplifier			2N482		PNP
X4	2S14	Driver			2N362		PNP
X5	2S15	Output			2N633		PNP
X6	2S15	Output			2N633		PNP Matched

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	TOSHIBA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	50	6	30228	XPP-6050	NLW50-6	TT6X50	ML50-6	TE-1100	
C2	8	3	30226	XPP-3008	NLW8-6	TT6X8	ML8-6	TE-1052.5	
C3	8	3	30226	XPP-3008	NLW8-6	TT6X8	ML8-6	TE-1052.5	
C4	30	3	30227	XPP-3030	NLW30-6	TT6X30	ML30-6	TE-1092	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	TOSHIBA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	50000			30213	C-80V503AM	DDA-503	H-05S5	TA-150	TG-S50	
C6	50000			30213	C-80V503AM	DDA-503	H-05S5	TA-150	TG-S50	
C7	10000			30211	C-80V103AM	DM-103	H-05S1	TA-110	TG-S10	
C8	50000			30213	C-80V503AM	DDA-503	H-05S5	TA-150	TG-S50	
C9	80		10%		1469-00008	DTZ-82	22R5Q82	CNO-482	MS-482	
C10	50000			30213	C-80V503AM	DDA-503	H-05S5	TA-150	TG-S50	
C11	50000			30213	C-80V503AM	DDA-503	H-05S5	TA-150	TG-S50	
C12	20		10%		1469-00002	DTZ-20	22R5Q2	CNO-422	MS-42	
C13	50000			30213	C-80V503AM	DDA-503	H-05S5	TA-150	TG-S50	
C14	20000			30212	C-80V203AM	DDM-203	H-05S2	TA-120	TG-S20	
C15	5000			30210	C-80V502AM	DDM-502	H-05D5	TA-250	TG-D50	
C16	.003	250		30255	P485N-003	DM-302	WMF4D33E	GTM-4233	6TM-D3	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	TOSHIBA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	2000Ω	1/4	40256	B16-212				Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		TOSHIBA PART No.	NOTES
	OHMS	WATT		
R2	68K		40549	
R3	1000Ω		40211	
R4	10Ω		40510	Note 1
R5	470Ω		40210	
R6	1000Ω		40211	
R7	1000Ω		40211	
R8	330Ω		40526	
R9	15K		40542	
R10	2700Ω		40535	
R11	470Ω		40210	

ITEM No.	RATING		TOSHIBA PART No.	NOTES
	OHMS	WATT		
R12	470Ω		40210	
R13	10K		40216	
R14	5600Ω		40538	
R15	22K		40218	
R16	1000Ω		40211	
R17			40250	Temp. Compensating
R18	330Ω		40526	
R19	10Ω		40510	
R20	4700Ω		40537	
R21	100Ω		40206	

Note 1. Not used in some versions.

PRINTED BOARD

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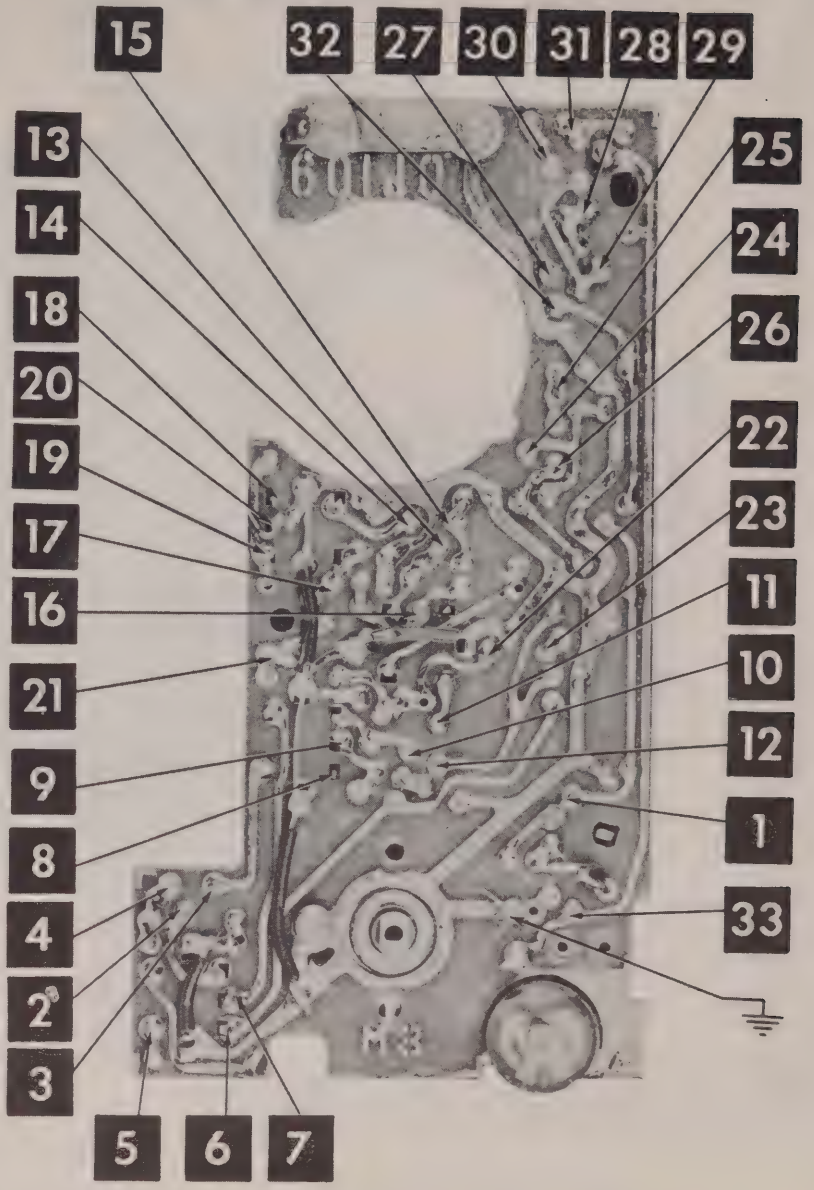


PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		TOSHIBA PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	20170						
L2	Osc. Coil	20171						
L3	1st IF Trans.	20172						
L4	2nd IF Trans.	20173						
L5	3rd IF Trans.	20174						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TOSHIBA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.9	1	20214 ①						① Alternate Part #20175

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	TOSHIBA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	550Ω CT	6-8Ω	20215 ①				TA-21②			① Alternate Part #20176 ② Use Original frame

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TOSHIBA PART No.	QUAM PART No.	
SP1	2 3/4"	PM	16-18Ω	50076	25A07Z16.8	

BATTERIES

ITEM No.	VOLTAGE	TOSHIBA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	6V	UM3		Z①		915① E9 ②		M-15R① ZM9②	① 4 Used ② Mercury Type, 4 used

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		TOSHIBA PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N60	1N60A	1N60	1N60	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	TOSHIBA PART No.	NOTES
M3	Tuning Cap. Printed Board	30225 60140	2 Gang, Ant. 165mmf, Osc. 70mmf Max.

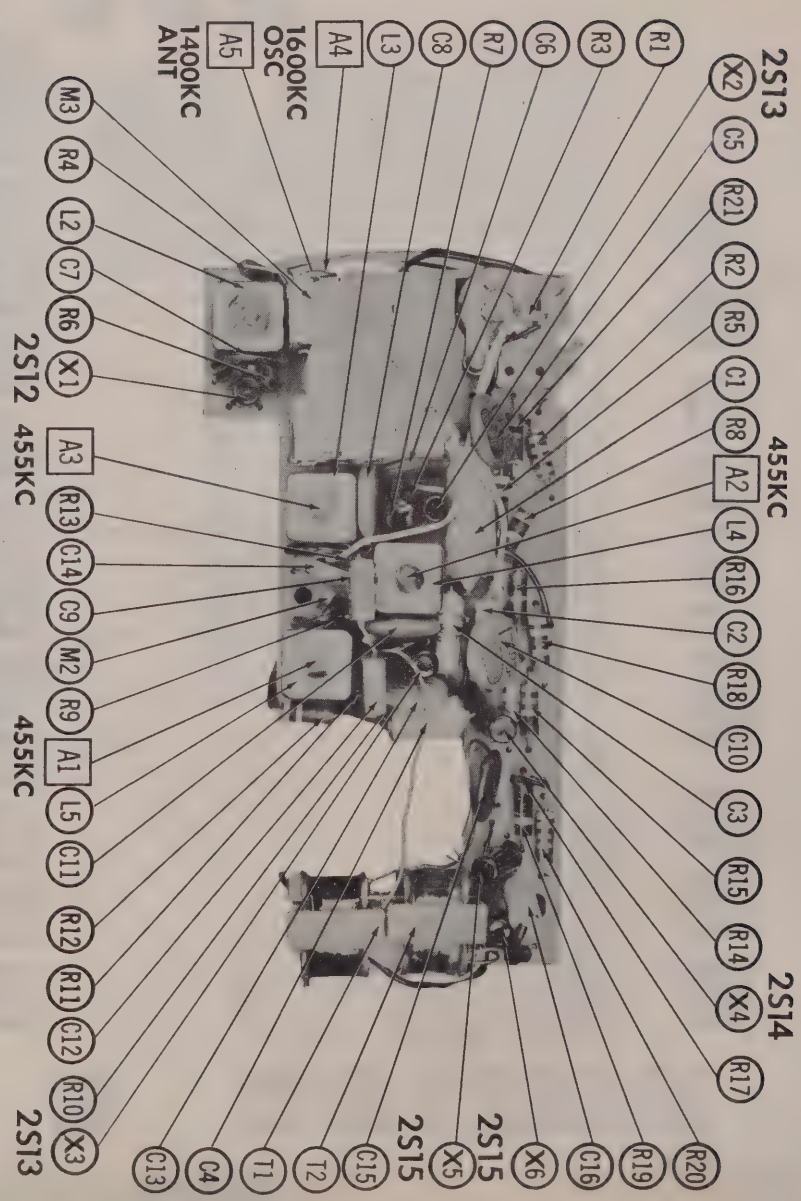
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

WESTINGHOUSE MODELS H-45AC1, H-45AC2

WESTINGHOUSE MODELS
H-45AC1, H-45AC2

MODEL H-45AC1

WESTINGHOUSE MODELS
H-45AC1, H-45AC2

TRADE NAME	Westinghouse Models H-45AC1, H-45AC2
MANUFACTURER	Westinghouse Electric Corp., TV-Radio Div., Metuchen, N. J.
TYPE SET	AC Operated 3 Tube Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 33 Watts, .35 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SIMILAR V-M 1200A — PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. -Phase Inv.	12AX7	
V2	Output	35C5	
V3	Output	35C5	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	60	150	218V025H27	PRS150V503020	BBRT84215	WT407		TVLS-3442. 9*	
B	40	150							
C	20	150							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	400			P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C3	680				BPD-00068	DD-681	BYA10T68	B-368	5GA-T68	
C4	100				BPD-0001	DD-101	L10T1	UC-310	5GA-T1	
C5	.22	200			P288N-22		CUB2P22	GEM-2022	2TM-P22	
C6	.05	400			P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C7	10000				BPD-01	DD-103	BYA10S1	B-110	5GA-S1	
C8	10000				BPD-01	DD-103	BYA10S1	B-110	5GA-S1	
C9	10000				BPD-01	DD-103	BYA10S1	B-110	5GA-S1	
C10	.05	400			P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	690V020H61	B-70	A47-1meg-Z	Q13-137	U53	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	500K	½	690V020H63	B-60	A47-500K-Z	Q13-133	U48	Treble
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	3meg	½	690V020H68	B-85	A47-3meg-Z	Q13-140	U57	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

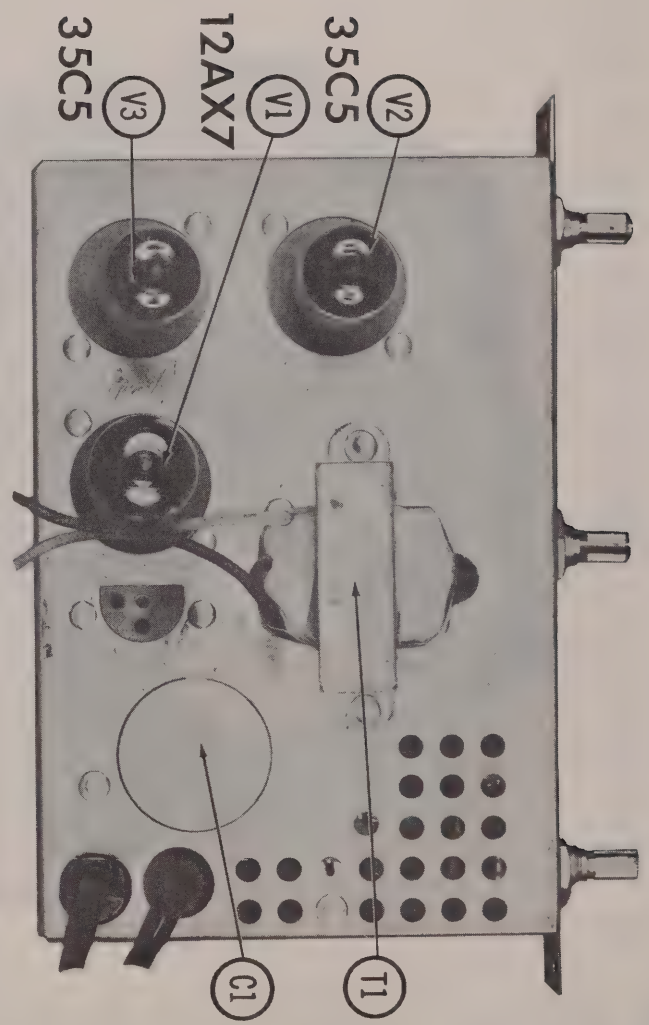
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Westinghouse PART No.	NOTES
	OHMS	WATT		
R4	82K			Note 1
R5	33K			
R6	1meg			
R7	220K			
R8	330Ω			
R9	39K			
R10	8200Ω			
R11	6. 8meg			
R12	220K			

ITEM No.	RATING		Westinghouse PART No.	NOTES
	OHMS	WATT		
R13	220K			
R14	220K			
R15	100Ω	1		
R16	220K			
R17	3300Ω			
R18	2200Ω	1		
R19	47Ω	2	RC-600	
R20	220Ω	10	RC-308	

Note 1. Not used in some versions.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3500Ω CT	30Ω SEC. 2 6-8Ω	TR-119							

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA Westinghouse PART No.	QUAM PART No.	NOTES
SP1 SP2	6" 6"	PM PM	3-4Ω 3-4Ω	SP-609① SP-609①	6A21 6A21	① Includes high frequency dispersing cone.

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA Westinghouse PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.087A	690V020H55①	HF154①	SD-94 ①	M150①		① Silicon Type

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA Westinghouse PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	REMARKS
M2	690V014H92	* 13-TB				* Includes needles & mounting mechanism.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA Westinghouse PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M3			† W-104STS and ♦ W-104STD	† Jewel ♦ Diamond

CABINETS & CABINET PARTS

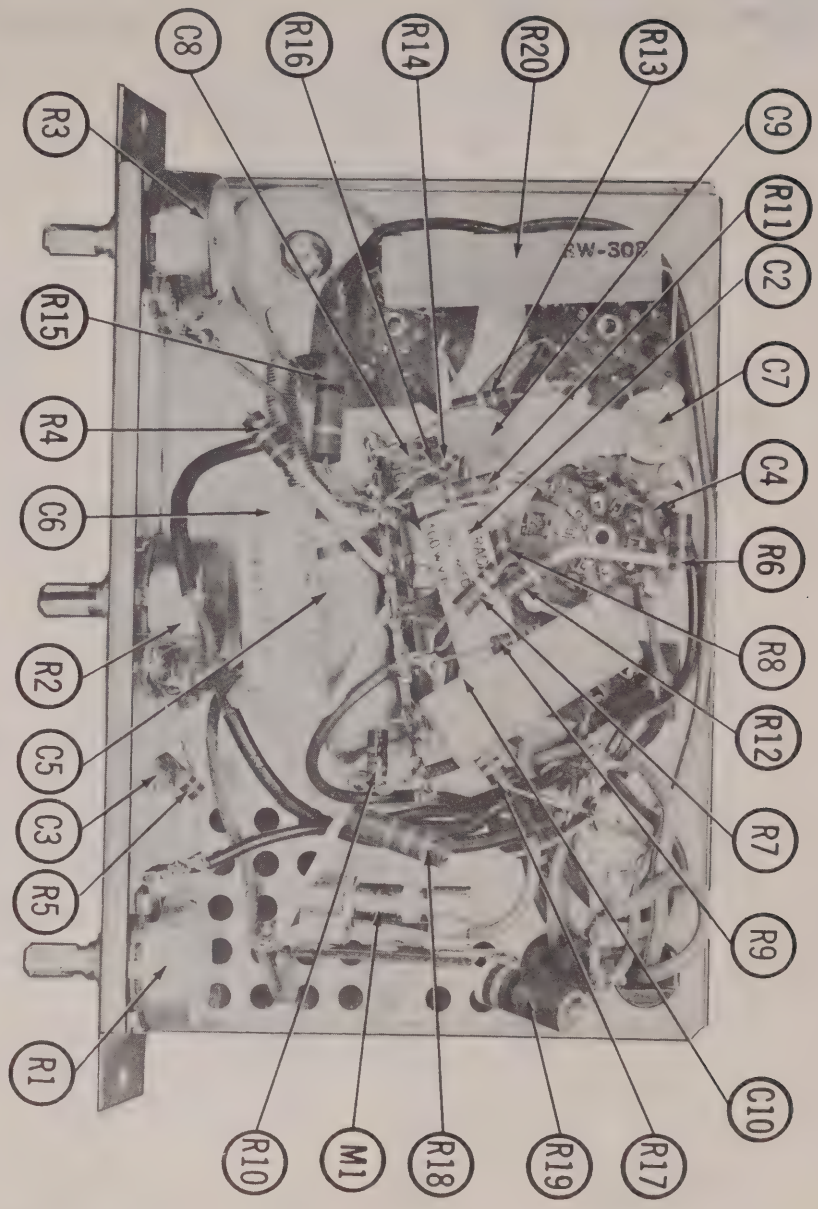
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

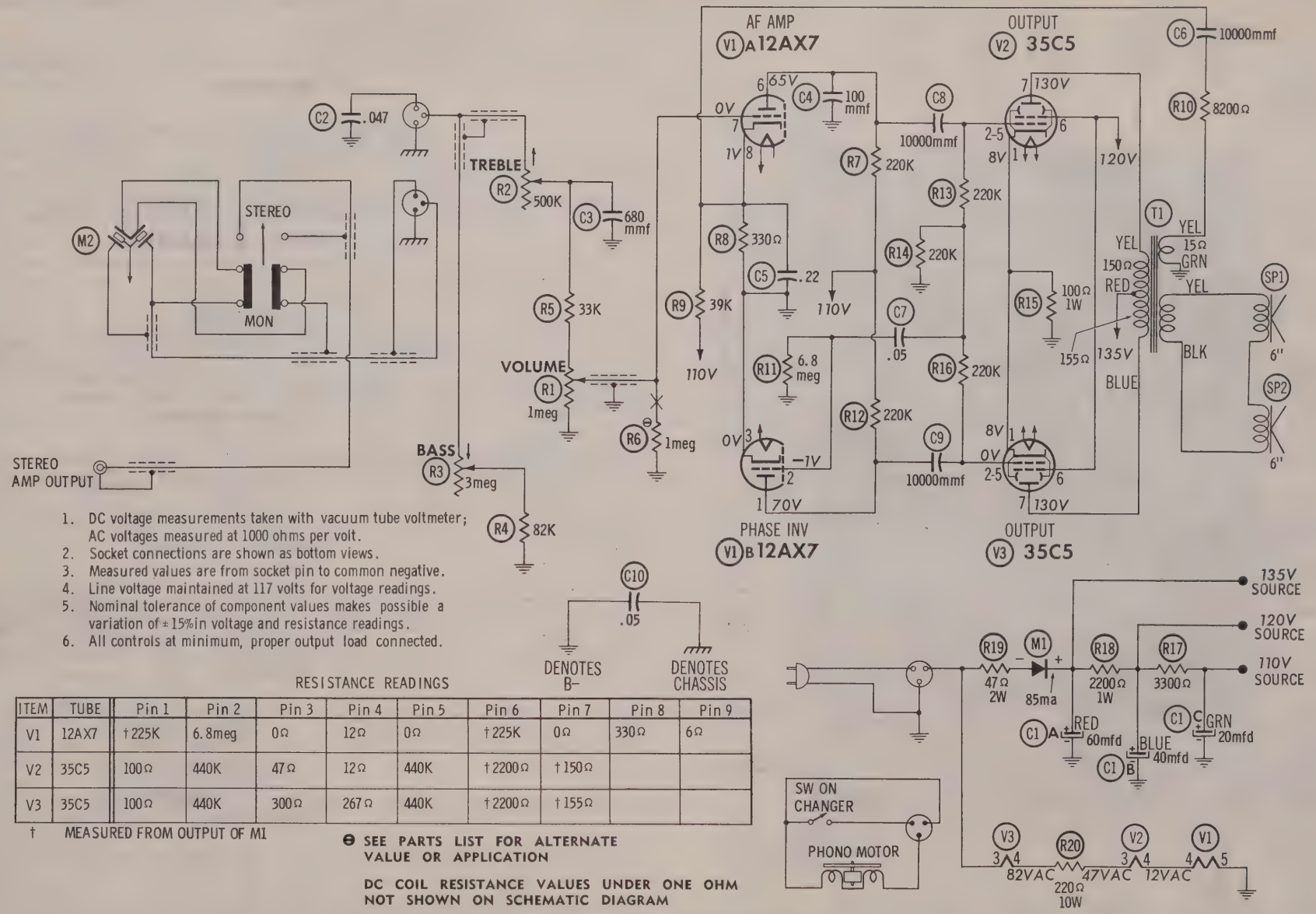
NAME	PART NO.	DESCRIPTION
Knob	690V020H43	Volume, Bass, Treble
Cabinet	690V020H11	Brown And White, Model H-45AC1
Cabinet	690V020H12	Charcoal And White, Model H-45AC2

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS BOTTOM VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†225K	6.8meg	0Ω	12Ω	0Ω	†225K	0Ω	330Ω	6Ω
V2	35C5	100Ω	440K	47Ω	12Ω	440K	†2200Ω	†150Ω		
V3	35C5	100Ω	440K	300Ω	267Ω	440K	†2200Ω	†155Ω		

† MEASURED FROM OUTPUT OF M1

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1959

WESTINGHOUSE MODELS H-45AC1, H-45AC2

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

VIKING
MODEL RP61-S

VIKING
MODEL RP61-S

VIKING
MODEL RP61-S

TRADE NAME	Viking Model RP61-S
MANUFACTURER	Viking of Minneapolis, Inc., 9600 Aldrich Ave. South, Minneapolis 20, Minn.
TYPE SET	AC Operated 4 Tube Record-Playback Amplifier
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 20 Watts, .22 Amp. @ 117 Volts AC (Record) 15 Watts, .17 Amp. @ 117 Volts AC (Play)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

J170

SET 451 FOLDER 18

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Preamp-AF Amp.	12AX7	12AD7 *
V2	AF Amp.	12AU7A	

* Alternate.

ITEM No.	USE	TYPE	NOTES
V3	Record Level Indicator	6E5	
V4	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA VIKING PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■15	475		AFH2-64-50	B0485	FP258	TMD-48	TVL-2820	
B	▲15	475							
C2A	■30	250		AFH3-89	C0670	FP331	TMT-74	TVL-3515	
B	▲30	250							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA VIKING PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	.047	400			P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C4	.1	200			P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C5	50				DI-50	DD-500	L10Q5	UC-545	5GA-Q5	
C6	.1	400			P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C7	100				DI-100	DD-101	L10T1	UC-531	5GA-T1	
C8	.022	400			P488N-022	DD-203	CUB4S22	GEM-4122	4TM-S22	
C9	.1	200			P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C10	.047	400			P488N-047	DF-503	CUB4S47	GEM-4147	4TM-P1	
C11	25				DI-25	DD-250	L10Q25	UC-5425	5GA-Q25	
C12	500				DI-500	DD-501	L10T5	UC-535	5GA-T5	
C13	.47	200			P288N-47		CUB2P47	GEM-2047	2TM-P47	
C14	100				DI-100	DD-101	L10T1	UC-531	5GA-T1	
C15	.01	400			P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C16	50				DI-50	DD-500	L10Q5	UC-545	5GA-Q5	
C17	.01	400			P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA VIKING PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	250K	½	RP15D	B-50	A47-250K-S	Q11-130	U46	Record Level
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	5000Ω	½	RP15C	B-10	A47-5000-S	Q11-114	U14	Equalizer
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	250K	½	DL3544	B-51	A47-250K-Z	Q13-130	U44	Playback Level
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power On-Off
R4	250Ω	1(WW)	CN18172				FL250P	Hum Balance

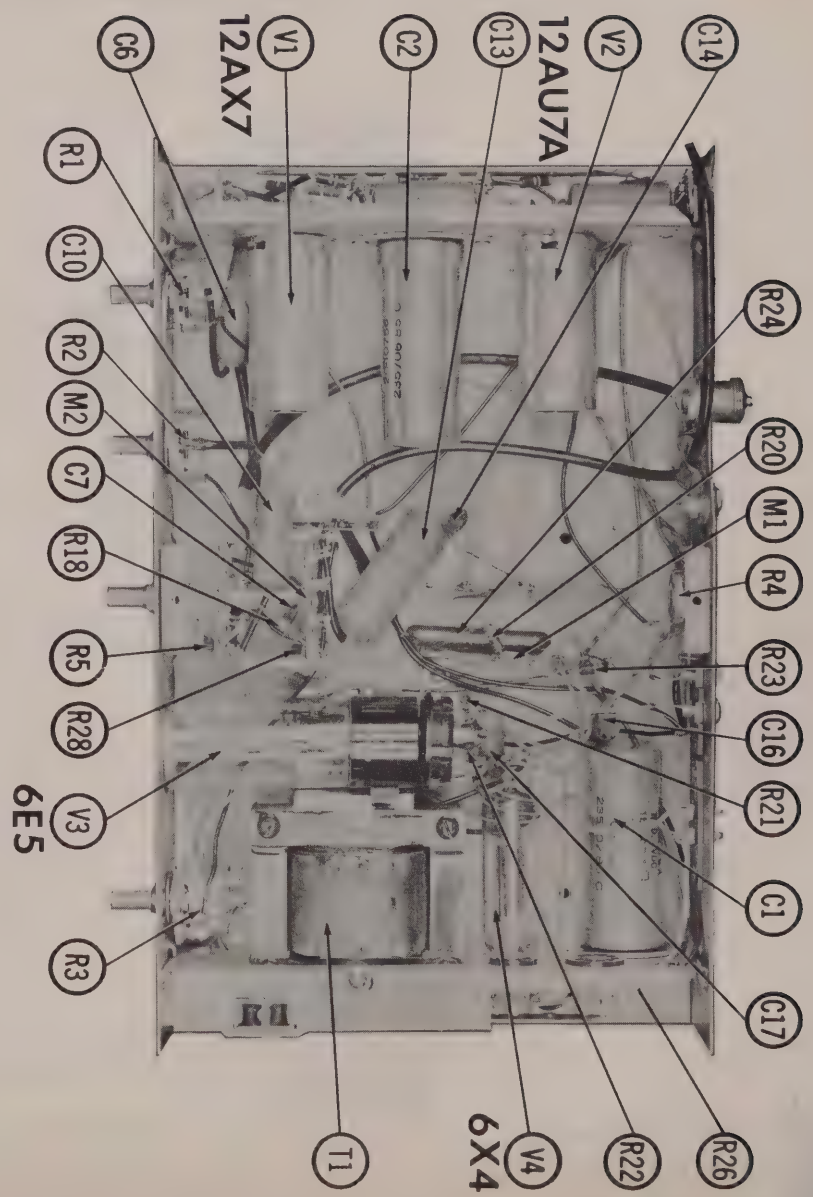
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	VIKING PART No.	NOTES
R5	120K			
R6	10meg			

ITEM No.	RATING OHMS	RATING WATT	VIKING PART No.	NOTES
R7	1000Ω			
R8	220K			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	VIKING PART No.	NOTES
R9	5600Ω			
R10	2.2meg			
R11	100K			
R12	2200Ω			
R13	100K			
R14	220K			
R15	2.2meg			
R16	100K			
R17	51K 5%			
R18	2200Ω			

ITEM No.	RATING OHMS	RATING WATT	VIKING PART No.	NOTES
R19	2200Ω			
R20	120K			
R21	4.7meg			
R22	1meg			
R23	10K			
R24	30K	5		
R25	100K			
R26	33K			
R27	220K			
R28	220K			

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA VIKING PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .22A	510VCT @ .020A	6.3V @ 1.3A	M845						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ .6A									

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA VIKING PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M1	1N294	1N294	1N60	1N60	

MISCELLANEOUS

ITEM No.	PART NAME	VIKING PART No.	NOTES
M2	Switch		Record-Playback (Rotary Wafer)

CABINETS & CABINET PARTS

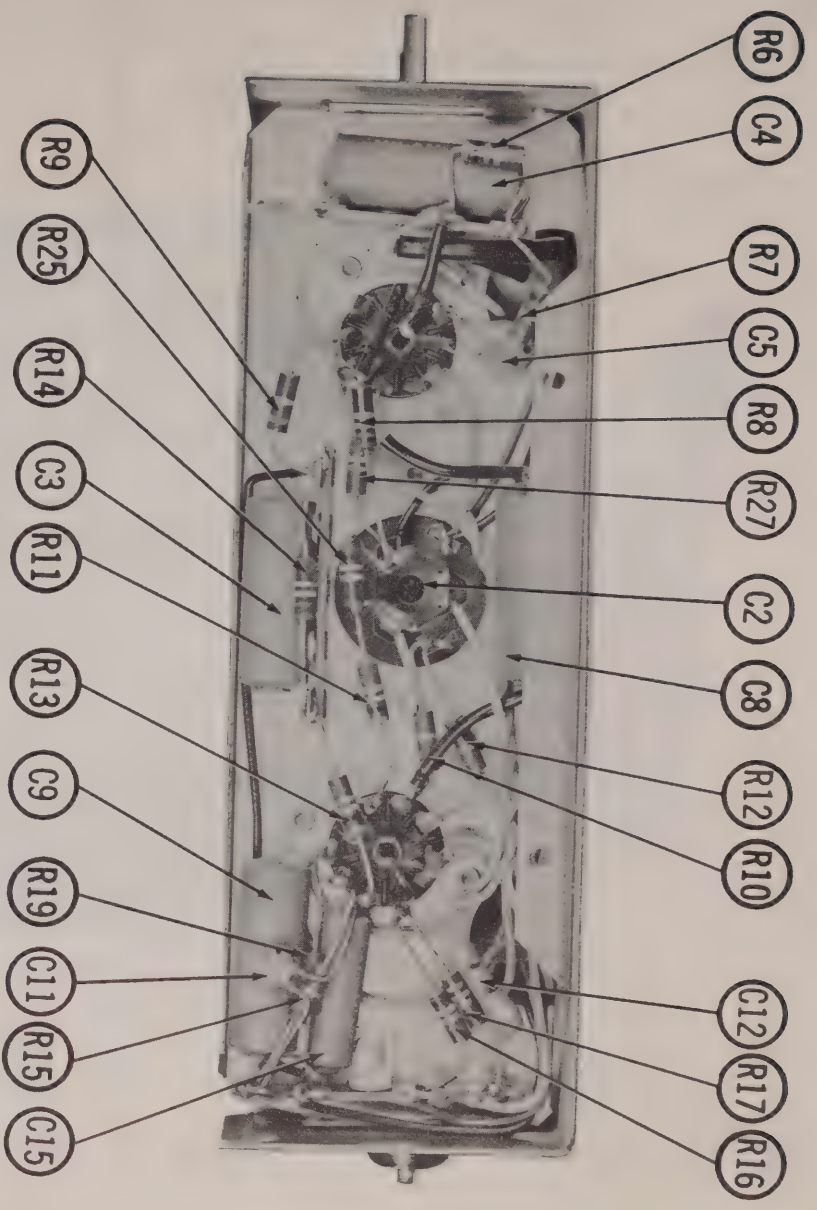
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

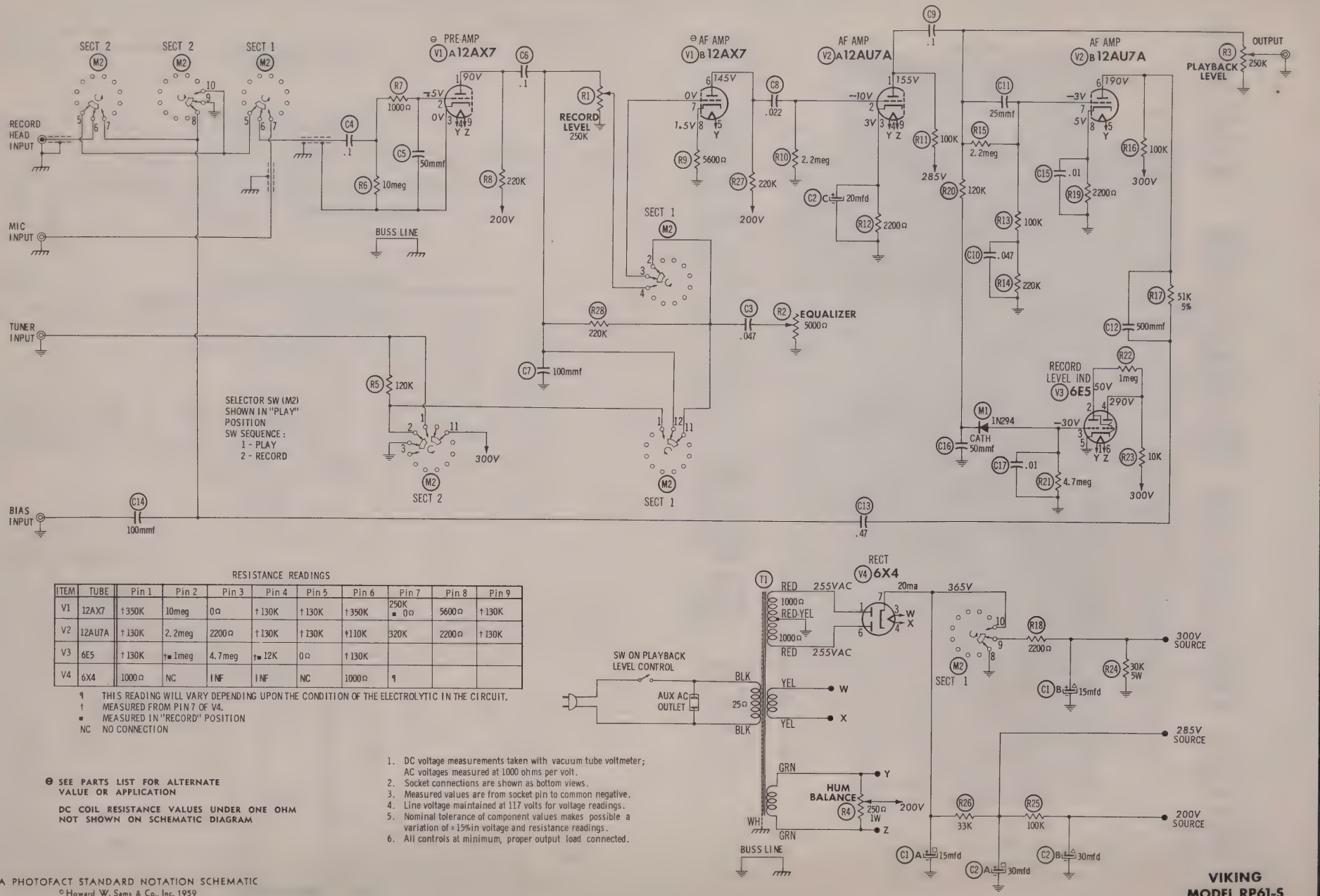
NAME	PART NO.	DESCRIPTION
Knob	RP16	Control (4 used)
Front Panel	RP13S	(Use Part #RP13)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)

CHASSIS—END VIEW

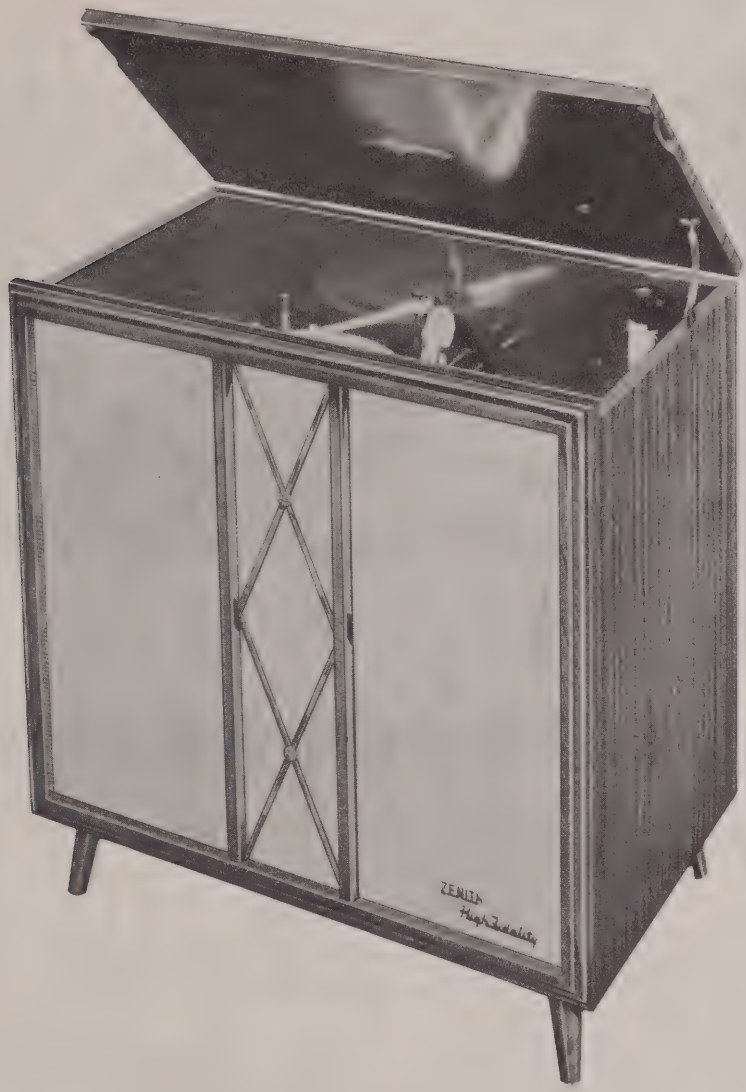



SECT 2
SECT 2
SECT 1
RECORD HEAD INPUT
MIC INPUT
TUNER INPUT
BIAS INPUT
100mmf
BUSS LINE
PRE-AMP V1A 12AX7
AF AMP V1B 12AX7
AF AMP V2A 12AU7A
AF AMP V2B 12AU7A
RECORD LEVEL 250K
EQUALIZER 5000Ω
SELECTOR SW (M2) SHOWN IN "PLAY" POSITION
SW SEQUENCE:
1 - PLAY
2 - RECORD
SECT 2
SECT 1
RECORD LEVEL IND V3 6E5
M1 1N294
CATH 50mmf
OUTPUT
PLAYBACK LEVEL
250K
.1
.022
.047
.47
25mmf
.01
.047
.1
.1
.1

PHOTOFACT* Folder

ZENITH MODELS HF117, E, R, HF118E, R (Ch. 5B22)

ZENITH MODELS HF117, E, R, HF118E, R (Ch. 5B22)



ZENITH MODELS HF117, E, R, HF118E, R (Ch. 5B22)

TRADE NAME	Zenith Models HF117, HF117E, HF117R, HF118E, HF118R (Ch. 5B22)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	AC Operated 5 Tube Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 69 Watts, .66 Amp. @ 117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE ZENITH S-14083 - PHOTOFACT SET 392 FOLDER 14

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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H988

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	6AT6	
V2	AF Amp. -Phase Inv.	12AU7A	
V3	Output	EL84/ 6BQ5	

ITEM No.	USE	TYPE	NOTES
V4	Output	EL84/ 6BQ5	
V5	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■40	450	22-3046	AFH3-43-50	C0344	FP376.9	TMT-39	TVL-3786	
B	▲40	450							
C	▲20	350							
C2	10	25	22-3076	PRS25V10	BBR10-25	TC22	TD-10-25	TVA-1204	
C3	3	30NP	22-2945	NP-PRS50V4	BBR5-50 †	TCN502	TD-5-50 †	TVAS-1215*	
					BBR5-50		TD-5-50		

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Connect Negative Leads Together.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	1000	1000	10%	2-17				JL-210	10HKB-D1S 10%*	
C5	1500		10%	22-12	DI-1500			JL-215	5HK-D15S 10%*	
C6	22		N330 10%	22-2903		TCA-22	C10Q22C			
C7	.001	400	10%	22-2843				JL-210	5BF-D1	
C8	.01	200	10%	22-2813				GEM-1611	2WF-S10	
C9	10000	1000		22-3	HVD-15-10000	DD-103	BYA10S1	B-110	10HKB-S1 *	
C10	.047	600		22-2794	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C11	100		10%	22-9	DI-100	DD-101	L10T1	CNO-310	5GA-T1S 10%*	
C12	.001	400	10%	22-2843				GEM-1621	5BF-D1	
C13	1000	1000	10%	22-17				JL-210	10HKB-D1S 10%*	
C14	3300		10%	22-2670	DI-3300			JL-233	5HK-D33S 10%*	
C15	100		10%	22-9	DI-100	DD-101	L10T1	CNO-310	5GA-T1S 10%*	
C16	.0068	200	10%	22-2819				GEM-16268	2WF-D68	
C17	.0068	200	10%	22-2819				GEM-16268	2WF-D68	
C18	.1	600		22-2782	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C19	330		10%	22-2309		D6-331		JL-333	5GA-T33S 10%*	
C20	.1	600		22-2782	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C21	330		10%	22-2309		D6-331		JL-333	5GA-T33S 10%*	
C22	4700	1000	10%	22-14				JL-247	10HKB-D47S 10%*	
C23	.047	200		22-2792	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C24	4700	1000	10%	22-14				JL-247	10GAB-D47S 10%*	
C25	.047	200		22-2792	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C26	10000	1000		22-3	HVD-15-10000	DD-103	BYA10S1	B-110	10GAB-S1	

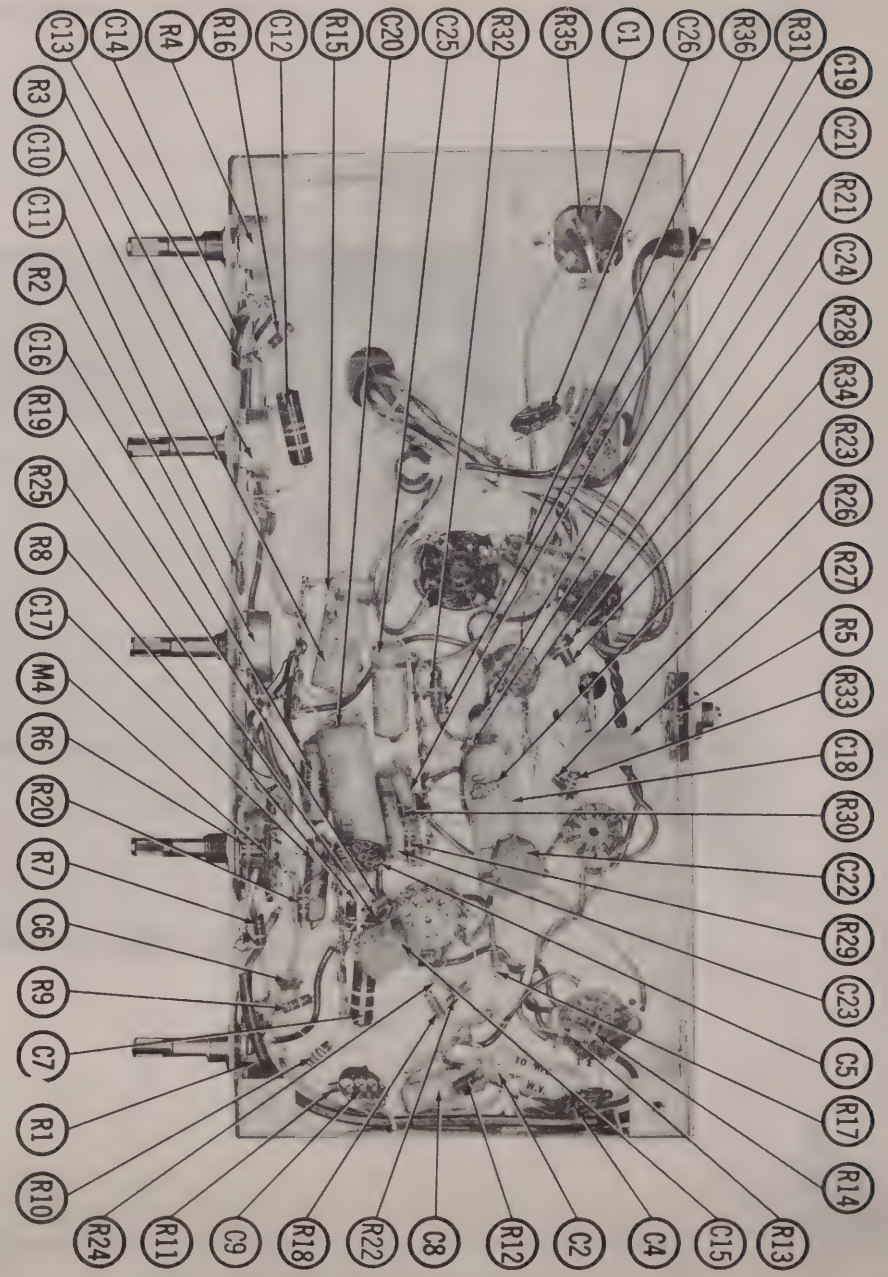
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	1/2	63-4067	BT-175		Q13-139XX	UDT-296	Loudness. Tap @ 500K, 1meg
B	Shaft			Not Req.		Not Req.	Not Req.	
R2A	10K	1/2	63-4066	B-14	A47-10K-S	Q11-116	U20	Presence
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	1meg	1/2	63-4065	B-69	A47-1meg-S	Q11-137	U54	Treble
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R4A	1meg	1/2	63-4064	B-70	A47-1meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R5A	50Ω	2WW	63-4068*	WN-500	A43-50	W11-050	R50L	Balance
B	Shaft			Not Req.	FKS-1/2	SK-5	Not Req.	

* Part #63-4402 may be used in some versions.

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (cont)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R6	330K		63-1890	
R7	2.2meg		63-1925	
R8	1meg		63-1911	
R9	2.2meg		63-1925	
R10	330K		63-1890	
R11	47K		63-1855	
R12	1meg		63-1911	
R13	100K		63-1869	
R14	1000Ω		63-1786	
R15	680K		63-1904	
R16	100K		63-1869	
R17	47K		63-1855	
R18	2200Ω		63-1799	
R19	22K		63-1841	
R20	470Ω		63-1771	
R21	100K		63-1869	
R22	150K		63-1876	
R23	150K		63-1876	
R24	47K		63-1855	
R25	2200Ω		63-1799	
R26	1000Ω		63-1786	
R27	135Ω 5%	2	63-4397	
R28	1000Ω		63-1786	
R29	4700Ω		63-1813	
R30	220K		63-1884	
R31	4700Ω		63-1813	
R32	220K		63-1884	
R33	330K		63-1890	
R34	330K		63-1890	
R35	5600Ω		63-1817	
R36	4000Ω	3	63-4069	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .66A	700 VCT @ .085A	5V @ 2A	95-1603	24R04U①			PC8409①	24R04U①	R-11A①
	SEC. 3	SEC. 4	SEC. 5							
	6.3 VCT @ 1.7A									

① Drill New Mounting Holes

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC. 1	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	5700Ω CT	60Ω	95-1623							
		SEC 2								
		6-8Ω								

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	ZENITH PART No.	QUAM PART No.	NOTES
SP1	12"	PM	6-8Ω	49-853①	12A6PA	① Used in Models HF118 Series only
SP2	5"	PM	3-4Ω	49-850①	5A15TZ4	② Used in Models HF117 Series only
SP3	5"	PM	3-4Ω	49-856	5A15TZ4	
SP4	3" x 3"	Electrostatic		S-23829		
	12"	PM	6-8Ω	49-852②	12A6PA	

FUSES

ITEM No.	TYPE	RATING	ZENITH PART No. FUSE	ZENITH PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	1½A 250V	136-32	62-17 15-115 (CAP)	31201.5 (3AG 1½A 250V)	342001	AGC 1½	HKP

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA ZENITH PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	REMARKS
M2	142-87	93-T				

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA ZENITH PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M3			* W-201DS	* Includes Cartridge

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M4	Switch	85-596	Selector, 5 Position (Rotary Wafer Type)

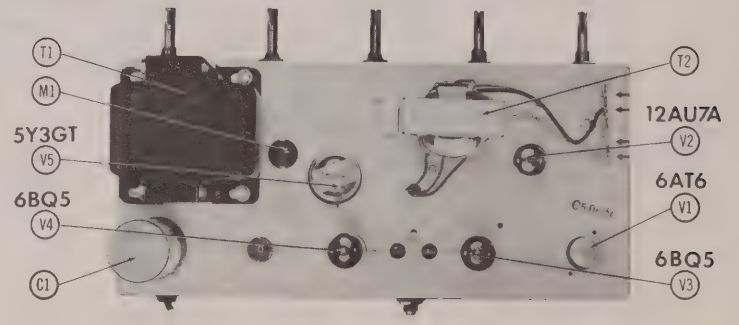
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

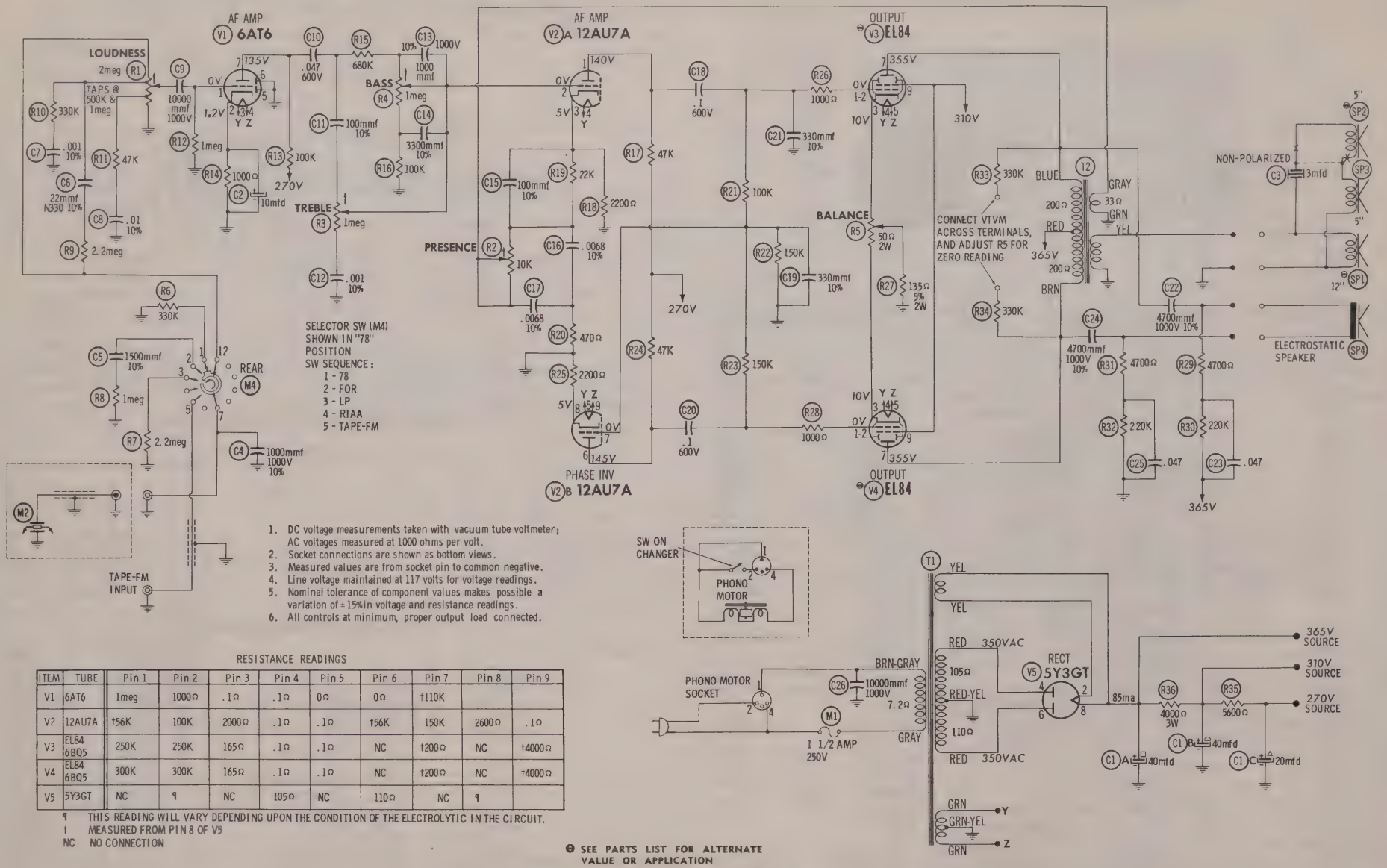
NAME	PART NO.	DESCRIPTION
Knob	46-1999	Control, 5 Used
Cabinet	14-2425E	Model HF118E
Cabinet	14-2425R	Model HF118R
Cabinet	14-2424	Model HF117
Cabinet	14-2424E	Model HF117E
Cabinet	14-2424R	Model HF117R
Legs	96-177	Model HF118R
Legs	96-178	Model HF118E

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)



CHASSIS—TOP VIEW



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AT6	1meg	1000Ω	.1Ω	.1Ω	0Ω	0Ω	†110K		
V2	12AU7A	†56K	100K	2000Ω	.1Ω	.1Ω	†56K	150K	2600Ω	.1Ω
V3	EL84 6BQ5	250K	250K	165Ω	.1Ω	.1Ω	NC	†200Ω	NC	†4000Ω
V4	EL84 6BQ5	300K	300K	165Ω	.1Ω	.1Ω	NC	†200Ω	NC	†4000Ω
V5	5Y3GT	NC	¶	NC	105Ω	NC	110Ω	NC	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V5
NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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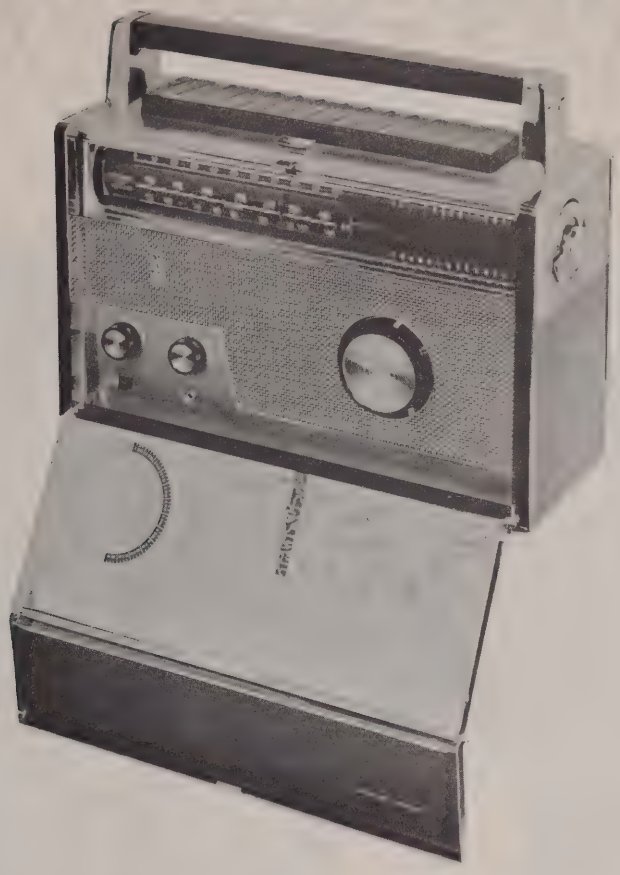
ZENITH MODELS HF117, E, R, HF118E, R (Ch. 5B22)

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

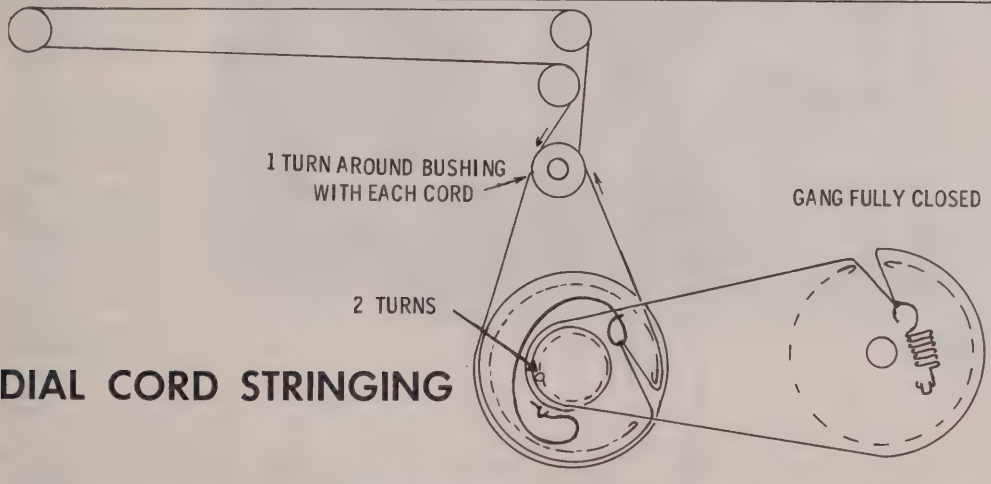
ZENITH MODEL
Royal 1000D

ZENITH MODEL
Royal 1000D



ZENITH MODEL
Royal 1000D

TRADE NAME	Zenith Model Royal 1000D		
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois		
TYPE SET	Battery Operated 9 Band Transistorized Portable Receiver		
POWER SUPPLY	12 Volts DC (Receiver) 1.5 Volts DC (Dial Lamp)	RATING	17MA @ 12 Volts DC (No Signal, Min. Volume) 20MA @ 12 Volts DC (Signal Normal Volume)
TUNING RANGES	150-400KC 540-1600KC 2-4MC	4-9MC 9.4-10.1MC 11.4-12.3MC	14.6-15.8MC 17.1-18.5MC 20.7-22.5MC



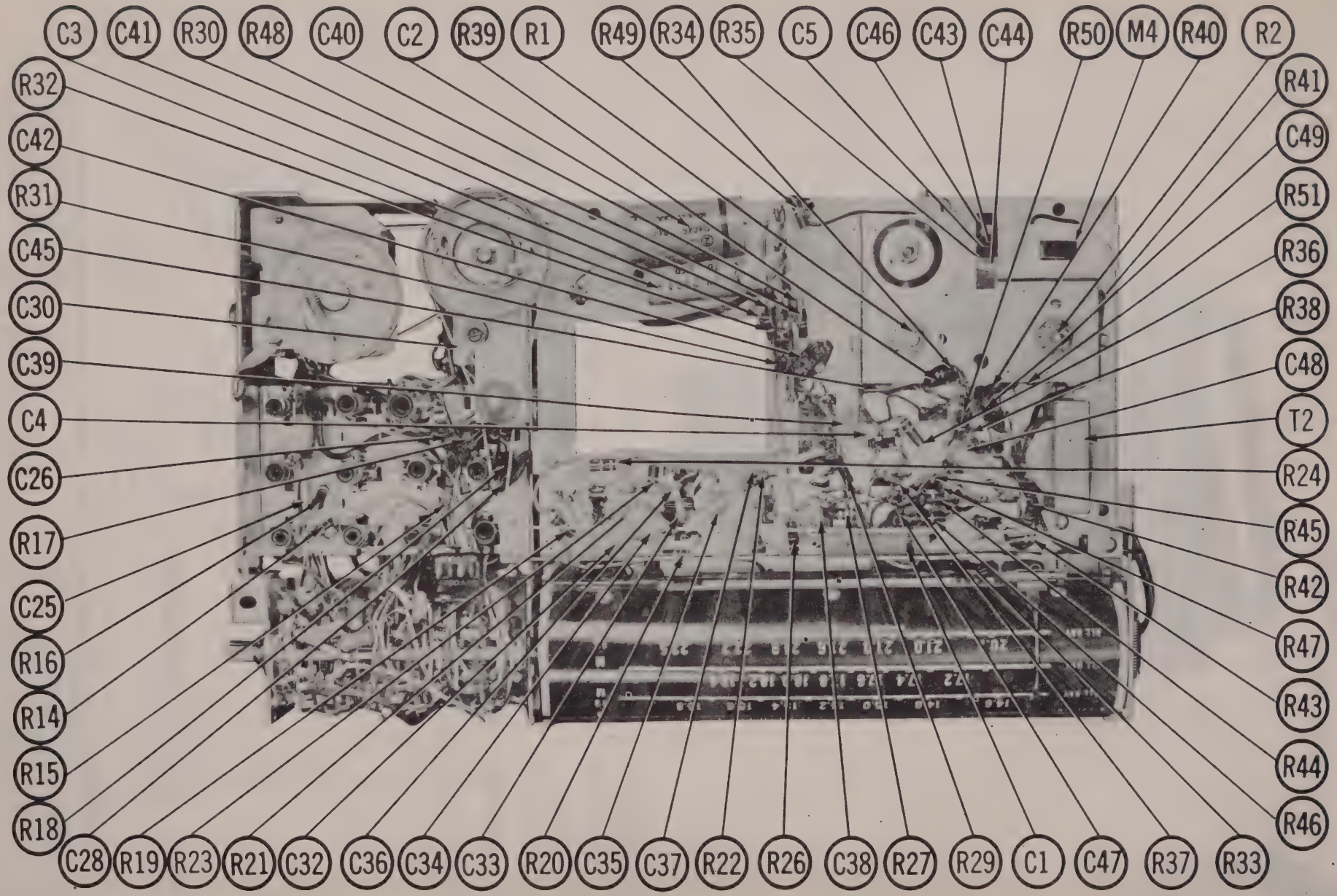
DIAL CORD STRINGING

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

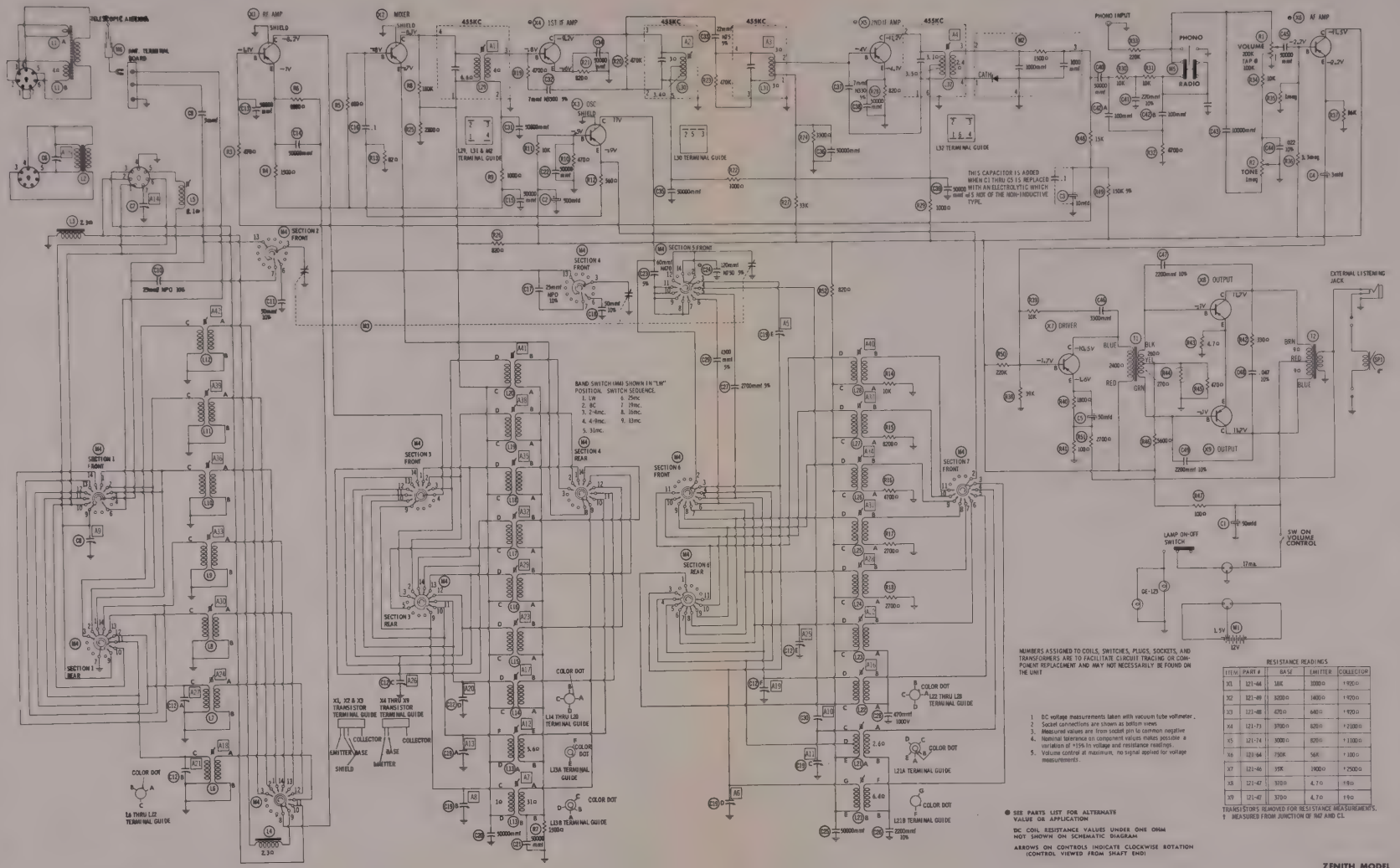
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

J132

SET 451 FOLDER 20



CHASSIS BOTTOM VIEW



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

ITEM	PART #	BASE	EMITTER	COLLECTOR
X1	121-66	18K	1000Ω	†920Ω
X2	121-69	1020Ω	1400Ω	†920Ω
X3	121-68	470Ω	680Ω	†920Ω
X4	121-73	3700Ω	820Ω	†2100Ω
X5	121-74	3000Ω	820Ω	† 1100Ω
X6	121-64	750K	56K	† 100Ω
X7	121-46	95K	1900Ω	†2500Ω
X8	121-47	370Ω	4.7Ω	†9Ω
X9	121-47	370Ω	4.7Ω	†9Ω

TRANSISTORS REMOVED FOR RESISTANCE MEASUREMENTS.
† MEASURED FROM JUNCTION OF R47 AND C1.

ZENITH MODEL
Royal 10000

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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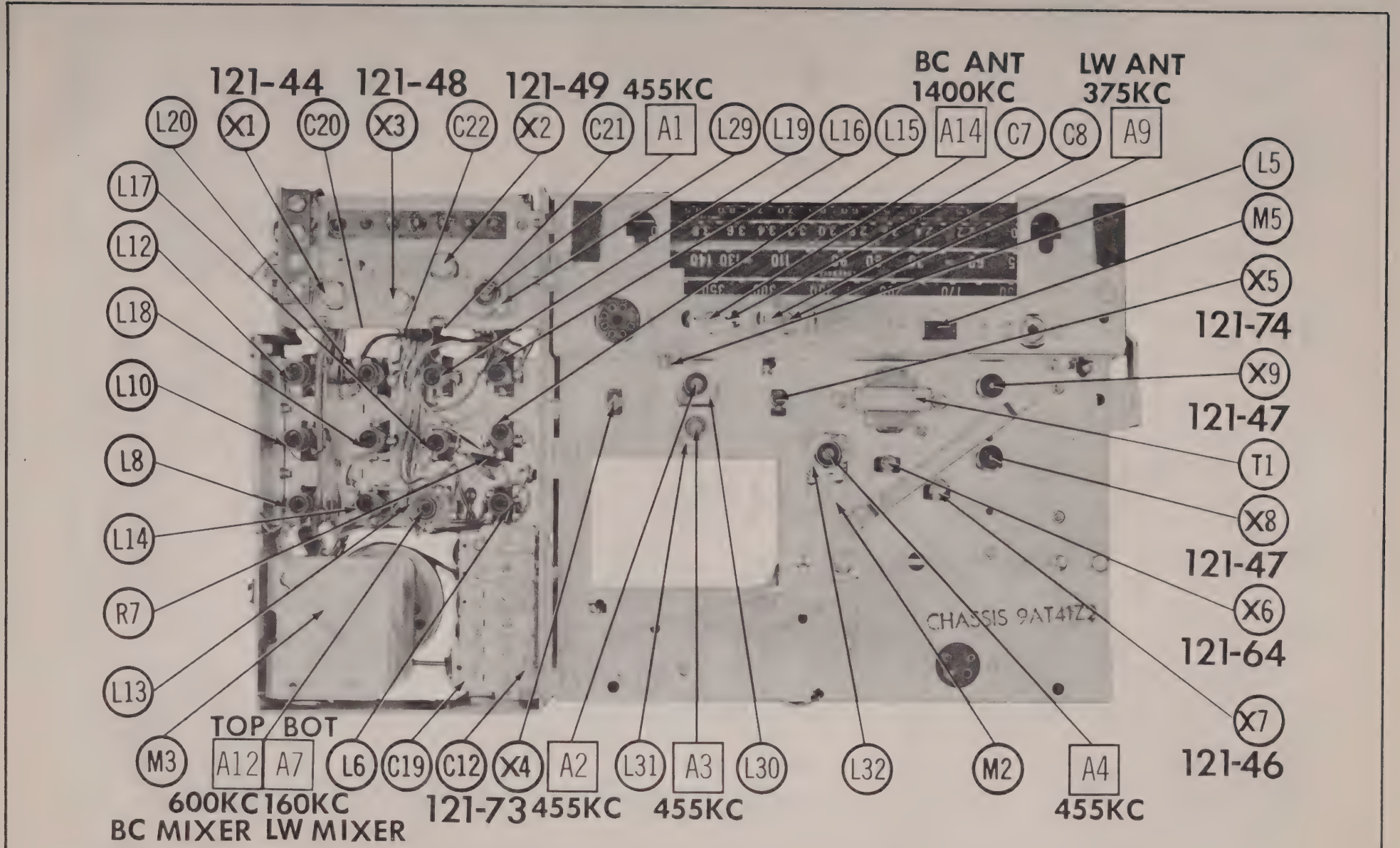


CHASSIS-TOP VIEW
MODEL Royal 1000D
ZENITH

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

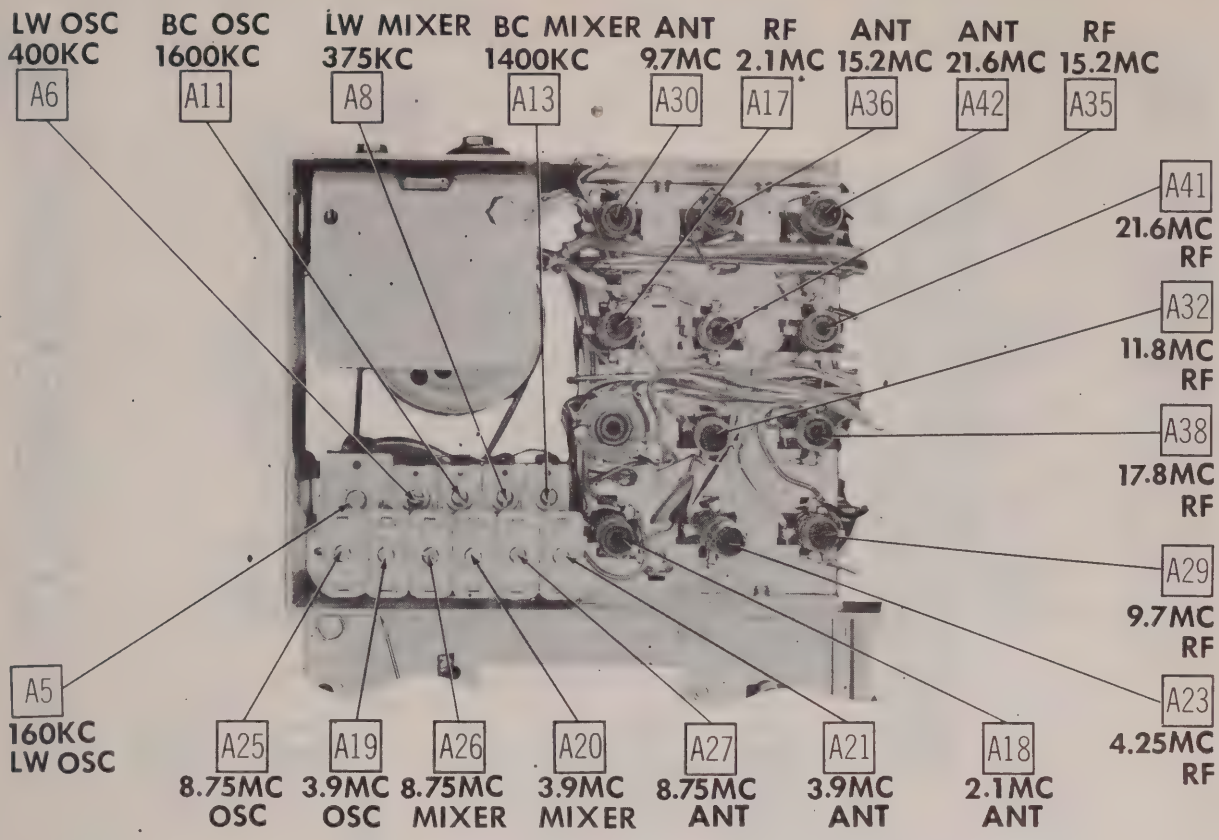
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3, A4 ..... GENERAL CEMENT #8607, 9291
WALSCO #2520, 2522, 2523, 2524, 2537

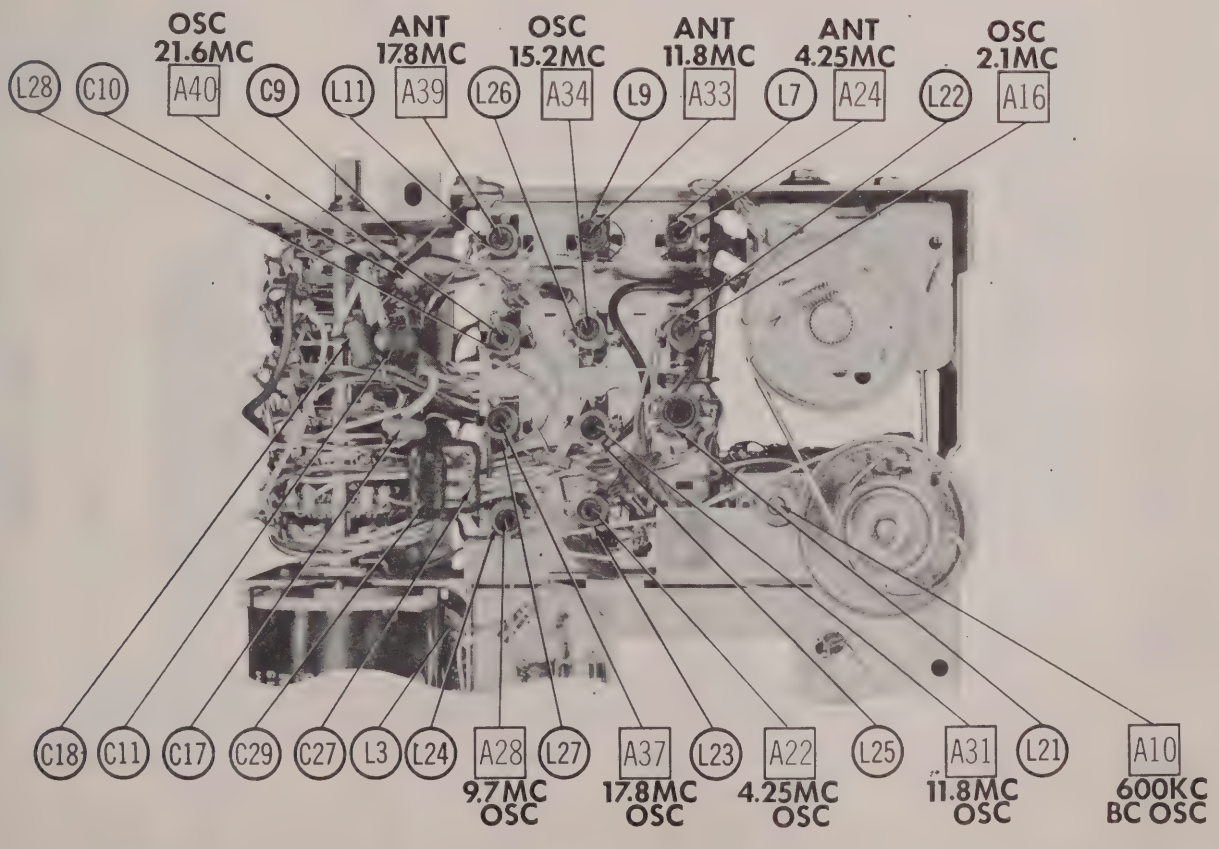
A5, A6, A8, A9, A10, A11, A13, A14, A15, A19, A20, A21, A25, A26, A27 ..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525

A7, A12, A16, A17, A18, A22, A23, A24, A28 thru A42 ..... GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400∿ Mod.)	BC	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		Loop coupled loosely to long wave antenna.	160KC	LW	160KC	"	A5	Adjust for maximum output.
3.		"	400KC	"	400KC	"	A6	Adjust for maximum output. Repeat steps 2 and 3.
4.		"	160KC	"	160KC	"	A7	Adjust for maximum output.
5.		"	375KC	"	375KC	"	A8	Adjust for maximum output. Repeat steps 4 and 5.
6.		"	"	"	"	"	A9	Adjust for maximum output.
7.		Loop coupled loosely to BC antenna.	600KC	BC	600KC	"	A10	Adjust for maximum output.
8.		"	1600KC	"	1600KC	"	A11	Adjust for maximum output. Repeat steps 7 and 8.
9.		"	600KC	"	600KC	"	A12	Adjust for maximum output.
10.		"	1400KC	"	1400KC	"	A13	Adjust for maximum output. Repeat steps 9 and 10.
11.		"	"	"	"	"	A14	Adjust for maximum output.
12.		"	"	"	"	"	A15	Place detachable antenna in center of metal frame window. Adjust for maximum output.
13.		3' of wire approximately 1' from and parallel with extended whip antenna.	2.1MC	2-4MC	2.1MC	"	A16, A17, A18	Adjust for maximum output.
14.		"	3.9MC	"	3.9MC	"	A19, A20, A21	Adjust for maximum output. Repeat steps 13 and 14.
15.		"	4.25MC	4-9MC	4.25MC	"	A22, A23 A24	Adjust for maximum output.
16.		"	8.75MC	"	8.75MC	"	A25, A26 A27	Adjust for maximum output. Repeat steps 15 and 16.
17.		"	9.7MC	31M	9.7MC	"	A28, A29 A30	Adjust for maximum output.
18.		"	11.8MC	25M	11.8MC	"	A31, A32, A33	"
19.		"	15.2MC	19M	15.2MC	"	A34, A35 A36	"
20.		"	17.8MC	16M	17.8MC	"	A37, A38 A39	"
21.		"	21.6MC	13M	21.6MC	"	A40, A41, A42	"



RF SECTION-TOP VIEW



RF SECTION-BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	MFGR PART No.	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	121-44	RF Amplifier		2N370		2N370	PNP
X2	121-49	Mixer		2N372		2N372	PNP
X3	121-48	Oscillator		2N371		2N371	PNP
X4	121-73	1st IF Amplifier		2N409	2N483	2N409	PNP (Alt. #121-75)
X5	121-74	2nd IF Amplifier		2N409	2N482	2N409	PNP (Alt. #121-76)
X6	121-64	1st AF Amplifier		2N407	2N362	2N407	PNP (Alt. #121-46)
X7	121-46	Driver		2N109	2N362	2N109	PNP
X8	121-47	Output		2N270	2N360	2N270	PNP Matched
X9	121-47	Output		2N270	2N360	2N270	PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	50	12	22-2883	SRE12V50	BBR50-25	TT15X50	ML50-15	TE-1132	
C2	500	12	22-2985	PRS12V500	BR5001	TC1505	TD-500-15	TVA-1132	
C3	10	12	22-2984	SRE25V10	BBR10-25	TT12X10	ML10-15	TE-1128	
C4	3	12	22-2884	XPP-12003	EC5-15	TT12X3	ML4-15	TE-1122	
C5	50	12	22-2883	SRE12V50	BBR50-25	TC29	ML50-15	TE-1133	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6				22-2983						
C7				22-2983						
C8				22-2989						
C9	5			22-1665	SI 5	D6-050	C10V5C	ZT-555	5GA-V5	
C10	25		NPO 10%	22-1392	NPO-SI 25	TCZ-25	C10Q25C	ZT-5425	5TCC-Q25S 10%*	
C11	50		10%	22-1761	NPO-SI 50	TCZ-50	C10Q5C	ZT-545	5GA-Q5S 10%*	
C12A										
B										
C				22-2969						
D										
E										
F										
C13	50000	25		22-2728	C-80V-503AM	DA-503	H-05S5	TA-150	TG-S50	
C14	50000	25		22-2728	C-80V-503AM	DA-503	H-05S5	TA-150	TG-S50	
C15	50000	25		22-2728	C-80V-503AM	DA-503	H-05S5	TA-150	TG-S50	
C16	.1	50		22-2998	P285N-1	DDA-104	STM-1P1	GTM-101	2WF-P10	
C17	25		NPO 10%	22-1392	NPO-SI 25	TCZ-25	C10Q25C	ZT-5425	5TCC-Q25S 10%*	
C18	50		10%	22-1761	NPO-SI 50	TCZ-50	C10Q5C	ZT-545	5GA-Q5S 10%*	

CAPACITORS (cont)

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C19A										
B										
C				22-3048						
D										
E										
C20	50000	25		22-2728	C-80V-503AM	DA-503	H-05S5	TA-150	TG-S50	
C21	50000	25		22-2728	C-80V-503AM	DA-503	H-05S5	TA-150	TG-S50	
C22	50000	25		22-2728	C-80V-503AM	DA-503	H-05S5	TA-150	TG-S50	
C23	60		N470 5%	22-2979						
C24	120		N750 2%						5TCU-T12S 2% *	①
C25	50000	25		22-2728	C-80V-503AM	DA-503	H-05S5	TA-150	TG-S50	
C26	2200		10%	22-18	DI 2200			JL-222	5GA-D22S 10%*	
C27	2700		5%	22-2981	ADM-19-272		1R5D27		MS-227	
C28	470	1000		22-6	HVD-15-470	DD-471	BYA10T47	B-347	5GA-T47	
C29	4300		5%	22-2982	ADM-20-432		1R5D43		MS-243	
C30				22-3049						
C31	50000	25		22-2728	C-80V-503AM	DA-503	H-05S5	TA-150	TG-S50	
C32	7		N330 5%	22-2978						
C33	22		N75 5%	22-2372						
C34	50000	25		22-2728	C-80V-503AM	DA-503	H-05S5	TA-150	TG-S50	
C35	50000	25		22-2728	C-80V-503AM	DA-503	H-05S5	TA-150	TG-S50	
C36	50000	25		22-2728	C-80V-503AM	DA-503	H-05S5	TA-150	TG-S50	
C37	7		N330 5%	22-2978						
C38	50000	25		22-2728	C-80V-503AM	DA-503	H-05S5	TA-150	TG-S50	
C39	50000	25		22-2728	C-80V-503AM	DA-502	H-05S5	TA-150	TG-S50	
C40	50000	25		22-2728	C-80V-503AM	DA-503	H-05S5	TA-150	TG-S50	
C41	220		10%	22-2703	DI 220	MD-221	L10T22	JL-322	5GA-T22S 10%*	
C42A	100			22-22	BPD-0001	DD-101	L10T1	UC-531	5GA-T1	
B	100				BPD-0001	DD-101	L10T1	UC-531	5GA-T1	
C43	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C44	.022	50	10%	22-2986			STM-1S22	GTM-1122	2WF-S22	
C45	50000	50		22-2728	C-80V-503AM	DA-503	H-05S5	TA-150	TG-S50	
C46	3300			22-11	BPD-0033	DD-332	BYA10D33	B-233	5HK-D33	
C47	2200		10%	22-18	DI 2200			JL-222	5GA-D22S 10%*	
C48	.047	50	10%	22-3045			STM-1S47	GTM-1147	2WF-S47	
C49	2200		10%	22-18	DI 2200			JL-222	5GA-D22S 10%*	

① Some versions may use 135mmf N750 2% in this application (Part #22-3067).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	200K	½	63-4006					Volume, Tap ② 100K
B	Switch							Power Off-On
R2	1meg	½	63-4018					Tone

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R3	470Ω		63-1771	
R4	1500Ω		63-1793	
R5	680Ω		63-1779	
R6	1000Ω		63-1786	
R7	1500Ω		63-1793	
R8	180K		63-1880	
R9	1000Ω		63-1786	
R10	470Ω		63-1771	
R11	10K		63-1827	
R12	560Ω		63-1775	
R13	82Ω		63-1740	
R14	10K		63-1827	
R15	8200Ω		63-1824	
R16	4700Ω		63-1813	
R17	2700Ω		63-1803	
R18	2700Ω		63-1803	
R19	4700Ω		63-1814	
R20	470K		63-1898	
R21	820Ω		63-1782	
R22	1000Ω		63-1786	
R23	470K		63-1898	
R24	3300Ω		63-1806	
R25	2200Ω		63-1800	
R26	820Ω		63-1782	
R27	33K		63-1848	
R28	820Ω		63-1782	
R29	1000Ω		63-1786	
R30	10K		63-1827	
R31	10K		63-1827	
R32	4700Ω		63-1813	
R33	220K		63-1883	
R34	10K		63-1827	
R35	1meg		63-1912	
R36	3.3meg		63-1933	
R37	56K		63-1859	
R38	39K		63-1852	
R39	10K		63-1828	
R40	1800Ω		63-1796	
R41	100Ω		63-1743	
R42	330Ω		63-1764	
R43	4.7Ω		63-4530	
R44			63-3663	Temp. Compensating
R45	470Ω		63-1772	
R46	5600Ω		63-1817	
R47	100Ω		63-1744	
R48	15K		63-1834	
R49	150K	5%	63-1875	
R50	220K		63-1884	
R51	2700Ω		63-1803	
R52	820Ω		63-1782	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ZENITH PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1A	BC Loopstick	S-43594						
B	LW Loopstick							
L2	Portable Loopstick	S-42212						
L3	455KC Trap Coil	95-1599	19-1015	19-1015		4631	VP-2	
L4	455KC Trap Coil	95-1599	19-1015	19-1015		4631	VP-2	
L5	Ant. Loading Coil	S-42080						
L6	2-4MC Ant. Coil	S-42089 †						† Part of M4B
L7	4-9MC Ant. Coil	S-42090 †						
L8	9.4-10MC Ant. Coil	S-42091 †						
L9	11.4-12.2MC Ant. Coil	S-42092 †						
L10	14.7-15.7MC Ant. Coil	S-42093 †						
L11	17.1-18.5MC Ant. Coil	S-42094 †						
L12	20.7-22.4MC Ant. Coil	S-42095 †						

COILS (cont)

ITEM No.	USE	REPLACEMENT DATA ZENITH PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L13A	BC RF Coil	S-43364						
B	LW RF Coil							
L14	2-4MC RF Coil	S-42097 †						
L15	4-9MC RF Coil	S-42098 †						
L16	9.4-10MC RF Coil	S-42099 †						
L17	11.4-12.2MC RF Coil	S-42100 †						
L18	14.7-15.7MC RF Coil	S-42101 †						
L19	17.1-18.5MC RF Coil	S-42102 †						
L20	20.7-22.4MC RF Coil	S-42103 †						
L21A	BC Osc. Coil	S-43363						
B	LW Osc. Coil							
L22	2-4MC Osc. Coil	S-42082 †						
L23	4-9MC Osc. Coil	S-42083 †						
L24	9.4-10MC Osc. Coil	S-42084 †						
L25	11.4Ω-12.2MC Osc. Coil	S-42085 †						
L26	14.7-15.7MC Osc. Coil	S-42086 †						
L27	17.1-18.5MC Osc. Coil	S-42087 †						
L28	20.7-22.4MC Osc. Coil	S-42088 †						
L29	1st IF Trans.	95-1563						
L30	2nd IF Pri.	95-1564						
L31	2nd IF Sec.	95-1565						
L32	3rd IF Trans.	95-1590						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO PRI.	TURNS RATIO SEC.	REPLACEMENT DATA ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2	1	95-1567						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	600Ω CT	3-4Ω	95-1551							

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	49-829	4A1	

BATTERIES

ITEM No.	VOLTAGE	ZENITH PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	12V 1.5V	Z2NL ① Z2NL	2R ① 2R		950 ① 950		M-13R① M-13R		9 used, Receiver Power Dial Light Power

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M2	Diode Det. Assem.		Includes Diode (Part #103-22), 1500Ω Resistor, 2 (1000mmf) capacitors
M3	Tuning Cap.	22-3050	3 Gang (Ant. 13-504mmf, RF 13-504mmf, Osc. 13-504mmf)
M4A	Switch	85-602	Band
B	Switch Ass'y	S-43367	Includes Bandswitch and Coils
M5	Switch	85-495	Radio-Phono (DPDT)
M6	Antennae	S-42207	Telescopic

CABINETS & CABINET PARTS

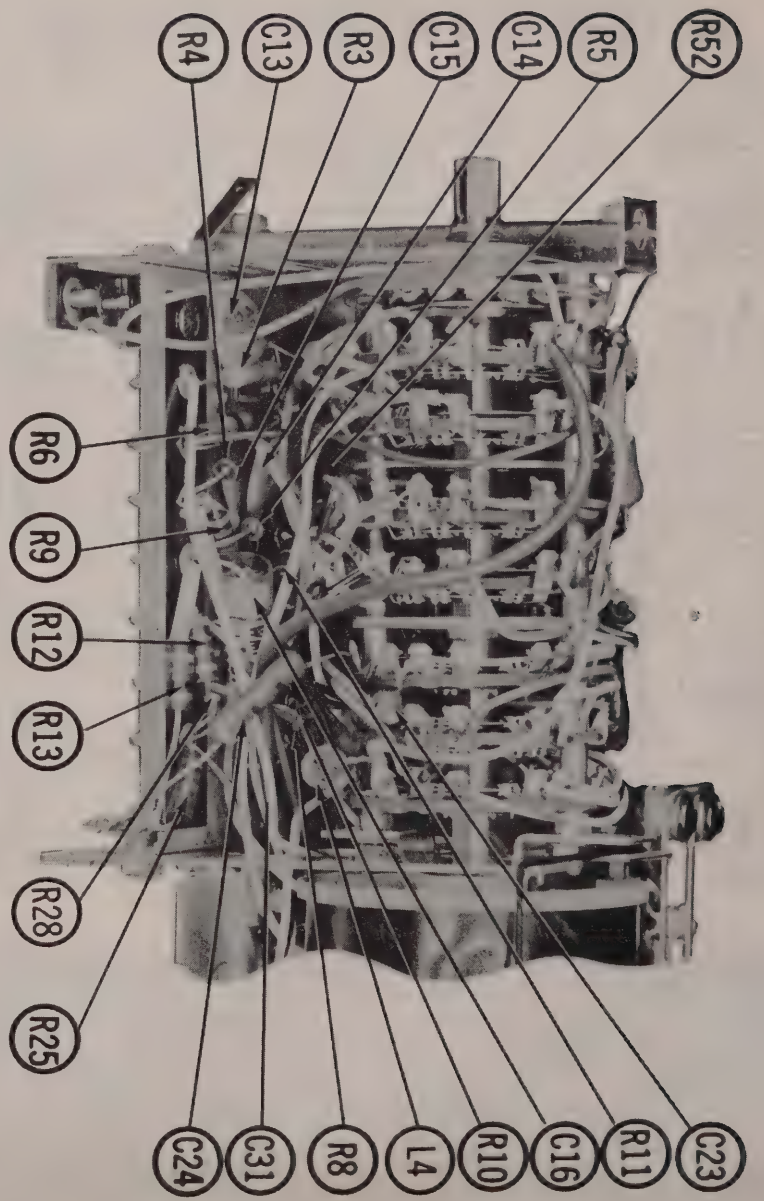
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	46-1809	Tuning
Knob	46-2005	Volume-On-Off
Knob	46-2006	Tone
Knob	46-1825	Band Selector
Knob	46-1812	Antenna
Knob	46-1810	Release
Cabinet Top Plate	57-2371	
Cabinet End Plate	57-2372	Left
Cabinet End Plate	57-2373	Right
Trim Plate	57-2379	Band Selector
Trim Plate	57-2416	Tuning
Indicator Plate	57-2513	Band Selector
Rear Door	S-44161	Includes Bushing Assembly
Top Door	S-44815	Includes Trim Strip and Leather Cover Assembly
Leather Material	110-303	2 used on end plate
Leather Material	110-304	Cabinet Support Bracket
Leather Material	110-305	Lower Front Door
Leather Material	110-307	Inside Top Door
Leather Material	110-319	Rear Door
Handle	S-43259	Includes Pin Assembly
Handle	36-205	Bottom Section
Dial Pointer	59-330	
Dial Drum	S-43369	
Dial Crystal	192-236	
Chart Book	202-1357	Shortwave

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

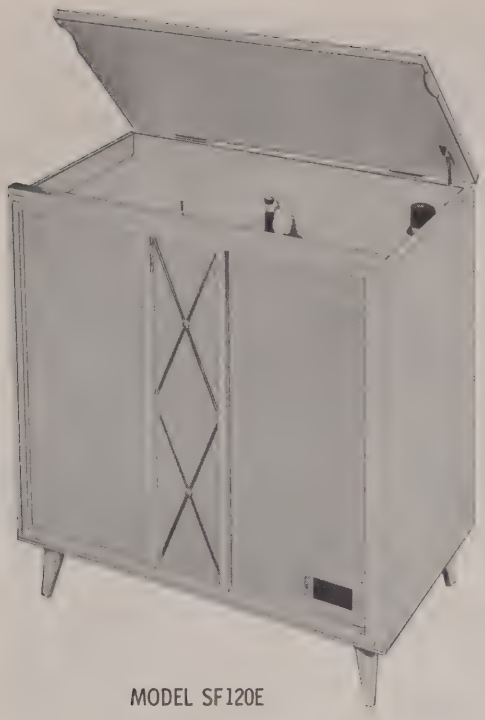
BAND SWITCH



PHOTOFACT* Folder

ZENITH MODELS SF119, E, R, SF120E, R, SF125, E, R (Ch. 5B23)

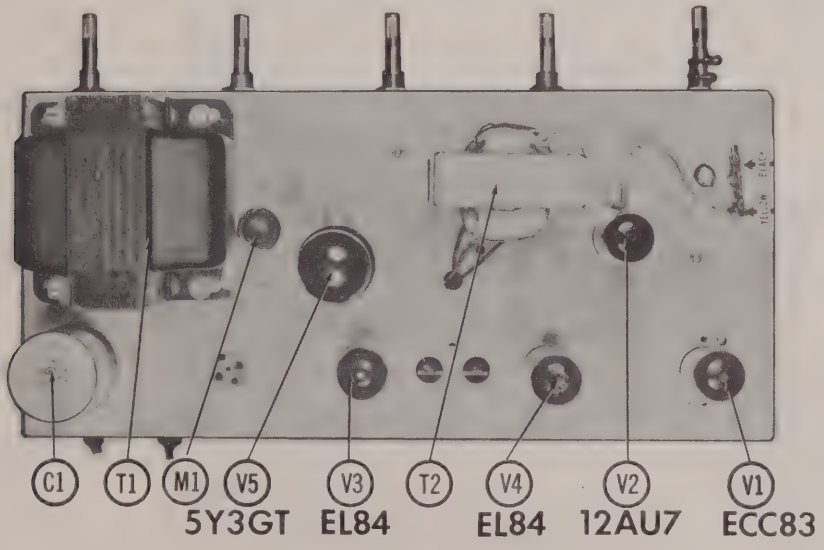
ZENITH MODELS SF119, E, R, SF120E, R, SF125, E, R (Ch. 5B23)



MODEL SF120E

TRADE NAME	Zenith Models SF119, SF119E, SF119R, SF120E, SF120R, SF125, SF125E, SF125R (Ch. 5B23)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	AC Operated 5 Tube Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 73 Watts, .66 Amp. @117 Volts AC

RECORD CHANGER S-14090 OR S-14093 USED IN SF125 SERIES
RECORD CHANGER S-14091 USED IN SF120 SERIES
RECORD CHANGER S-14901 USED IN SF119 SERIES
FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SIMILAR ZENITH S-14086 — PHOTOFACT SET 402 FOLDER 15



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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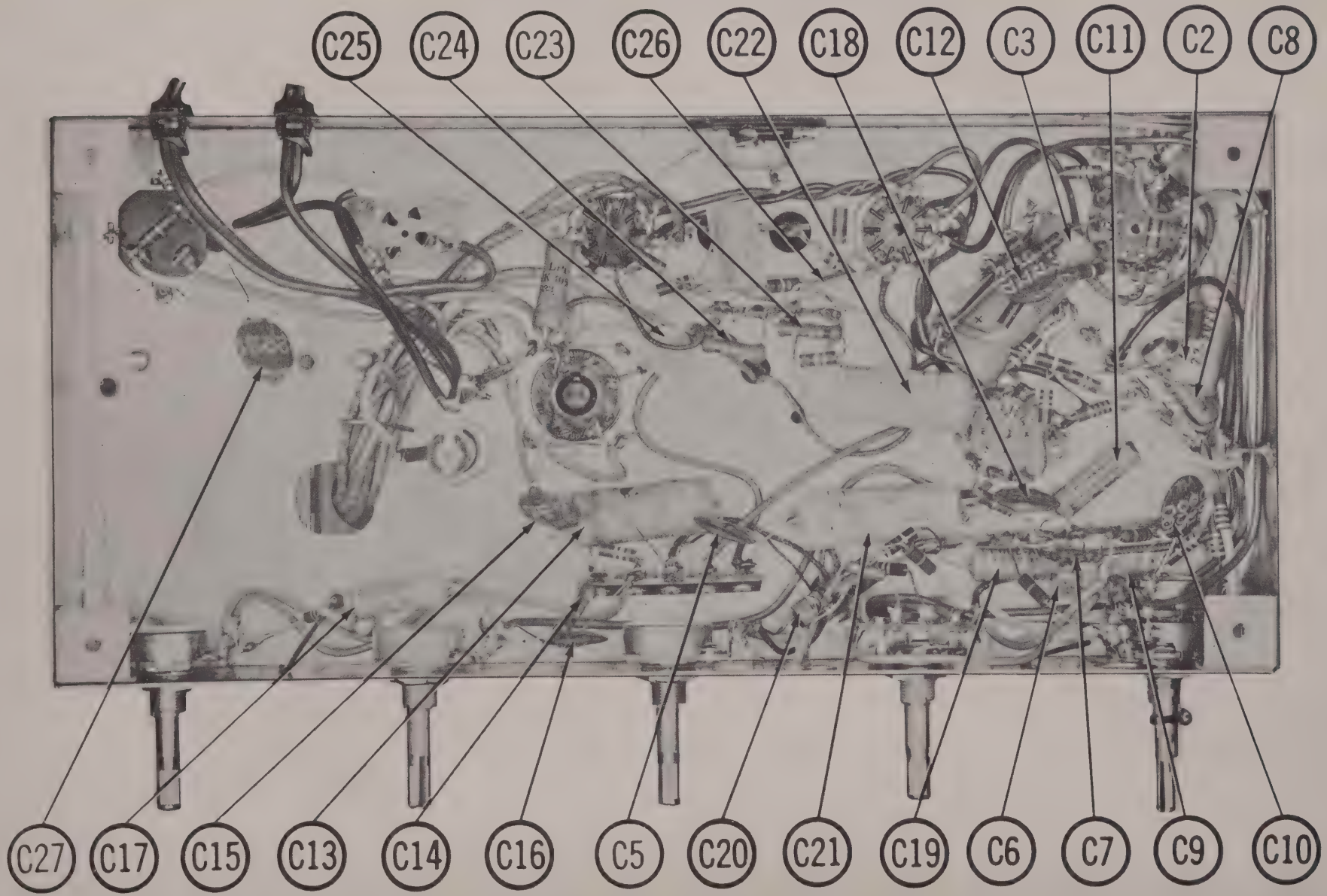
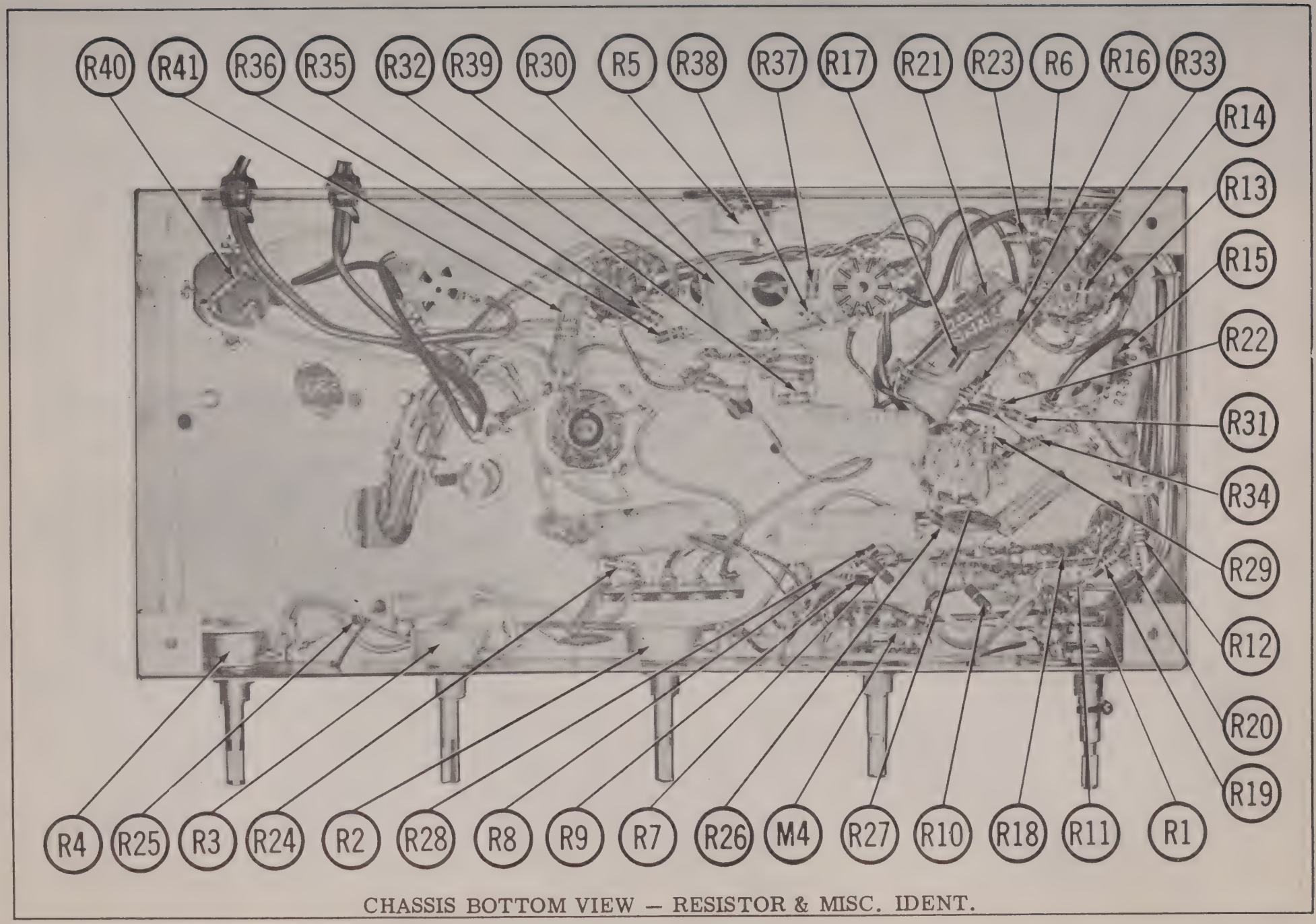
J29

SET 451 FOLDER 21



CHASSIS BOTTOM VIEW — CAPACITOR IDENT.



CHASSIS BOTTOM VIEW – RESISTOR & MISC. IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. -Cath. Follower	ECC83/ 12AX7	
V2	AF Amp. -Phase Inv.	12AU7	
V3	Output	EL84/ 6BQ5	
V4	Output	EL84/ 6BQ5	
V5	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■40	450	22-3046	AFH3-43-50	C0344	FP376.9	TMT-39	TVL-3786	
B	▬40	450							
C	▲20	350							
C2	10	25	22-3076	PRS25V10	BBR10-25	TC22	TD-10-25	TVA-1204	
C3	12	150	22-2056	PRS150V12	BBR12-150	TC43	TD-12-150	TVA-1407	
C4	3	30NP	22-2945	NP-PRS50V4	BBR5-50 † BBR5-50	TCN503	TD-5-50 † TD-5-50	TVAS-1215*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Connect Negative Leads Together.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C5	2200		10%	22-18	DI-2200			JL-222	5GA-D22S 10%*	
C6	22		N330 10%	22-2903						
C7	1000	1000	10%	22-17		DD-102	BYA10D1M	JL-210	10HKB-D1S 10%*	
C8	.01	200	10%	22-2813				GEM-1611	4TM-S1S 10% *	
C9	22		N330 10%	22-2903						
C10	1000	1000	10%	22-17		DD-102	BYA10D1M	JL-210	10HKB-D1S 10%*	
C11	.01	200	10%	22-2813				GEM-1611	4TM-S1S 10%*	
C12	10000	1000		22-3	BPD-01	DD-103	BYA10S1	B-110	10HKB-S1S 10%*	
C13	.047	600		22-2794	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C14	330		10%	22-2309	1469-00033	D6-331	5R5T33	JL-333	MS-333	
C15	2200		10%	22-18	DI-2200			JL-222	5GA-D22S 10%*	
C16	2200		10%	22-18	DI-2200			JL-222	5GA-D22S 10%*	
C17	.0068	200	10%	22-2819				GEM-16268	6TM-D68S 10%*	
C18	100		10%	22-9	DI-100	DD-101	L10T1	CNO-310	5GA-T1S 10%*	
C19	.0068	200	10%	22-2819				GEM-16268	6TM-D68S 10%*	
C20	.0068	200	10%	22-2819				GEM-16268	6TM-D68S 10%*	
C21	.1	600		22-2782	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C22	.1	600		22-2782	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C23	330		10%	22-2309	1469-00033	D6-331	5R5T33	JL-333	MS-333	
C24	330		10%	22-2309	1469-00033	D6-331	5R5T33	JL-333	MS-333	

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C25	47		N75 10%	22-2376						
C26	47		N75 10%	22-2376						
C27	10000	1000		22-3	BPD-01	DD-103	BYA10S1	B-210	10HKB-S1S 10%*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	½	63-4373					Loudness, Taps
B	2meg	½						Stereo Balance, Taps
R2A	10K	½	63-4066	B-14	A47-10K-S	Q11-116	U20	Presence
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	1meg	½	63-4065	B-69	A47-1meg-S	Q11-137	U54	Treble
B	Shaft			Not. Req.	KSS-3	Not Req.	Not Req.	
R4A	1meg	½	63-4064	B-70	A47-1meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R5A	50Ω	1(WW)	63-4402	WN-500	A43-50	WPK50	C50P	Current Balance
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R6	1.8meg		63-1922	
R7	1.5meg		63-1918	
R8	220K		63-1883	
R9	680K		63-1904	
R10	2.2meg		63-1925	
R11	330K		63-1891	
R12	47K		63-1855	
R13	56K			①
R14	100K		63-1870	
R15	1000Ω		63-1786	
R16	100K		63-1870	①
R17	1meg		63-1912	
R18	2.2meg		63-1925	
R19	330K		63-1891	
R20	47K		63-1855	
R21	1000Ω		63-1786	
R22	100K		63-1870	
R23	18K		63-1838	

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R24	270K		63-1887	
R25	47K		63-1855	
R26	2200Ω		63-1799	
R27	22K		63-1841	
R28	470Ω		63-1771	
R29	47K		63-1855	
R30	100K		63-1869	
R31	150K		63-1876	
R32	150K		63-1876	
R33	47K		63-1855	
R34	2200Ω		63-1799	
R35	1000Ω		63-1786	
R36	330K		63-1890	
R37	1000Ω		63-1786	
R38	330K		63-1890	
R39	135Ω 5%	2	63-4397	
R40	5600Ω		63-1817	
R41	4000Ω	3	63-4069	

① Not used in some versions.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
				ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
	PRI.	SEC. 1	SEC. 2							
T1	117V @ .66A	700 VCT @ .090A	5V @ 2A	95-1603	22R04U ①			PC8409 ①	24R04U ①	R-11A ①
	SEC. 3	SEC. 4	SEC. 5							
	6.3 VCT @ 1.7A									

① Drill new mounting holes

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
			ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
	PRI.	SEC. 1								
T2	6200Ω CT	600Ω	95-1604							
		SEC. 2								
		3-4Ω								

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
				ZENITH PART No.	QUAM PART No.	
	SIZE	FIELD	V. C. IMP.			
SP1	12"	PM	3-4Ω	49-871 ①	12A4Z3.5 ①	① Models SF120E, R
SP2	5"	PM	3-4Ω	49-850 ①	5A15TZ4 ①	
SP3	5"	PM	3-4Ω	49-856 ②	5A15TZ4 ②	② Models SF120E, R; SF119E, R, SF125E, R
	12"	PM		49-870 ③		③ Models SF119E, R
	12"	PM		49-852 ④		④ Models SF125E, R
	12"	PM		49-853 ④		
	3½"	PM		49-846 ⑤		⑤ Models SF125E, R

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ZENITH PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	1½A 250V	136-32	62-17 (5-115 (Cap)	31201.5 (3AG 1½A 250V)	342001	AGC 1½	HKP

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	ZENITH PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M2	142-92	13-TB				

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	ZENITH PART No.	JENSEN PART No.	WALCO PART No.	
M3	(78RPM)	† E-98 or ♦ E-98D	† W-102S	† Jewel ♦ Diamond
	(LP)	† E-98X or ♦ E-98XD	† W-101STS or ♦ W-101STD	

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M4	Switch	85-607	Record Compensator (6 Position, Rotary Wafer Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	46-2096	Volume
Knob	46-1997	Volume Remote
Knob	48-2081	Control, 4 Used
Cabinet	14-2519E	Model SF120E
Cabinet	14-2519R	Model SF120R
Cabinet	14-2518	Model SF119
Cabinet	14-2518E	Model SF119E

NAME	PART NO.	DESCRIPTION
Cabinet	14-2518R	Model SF119R
Cabinet	14-2401	Model SF125
Cabinet	14-2401E	Model SF125E
Cabinet	14-2401R	Model SF125R
Legs	96-117	4 Used, Model SF120R
Legs	96-178	4 Used, Model SF120E

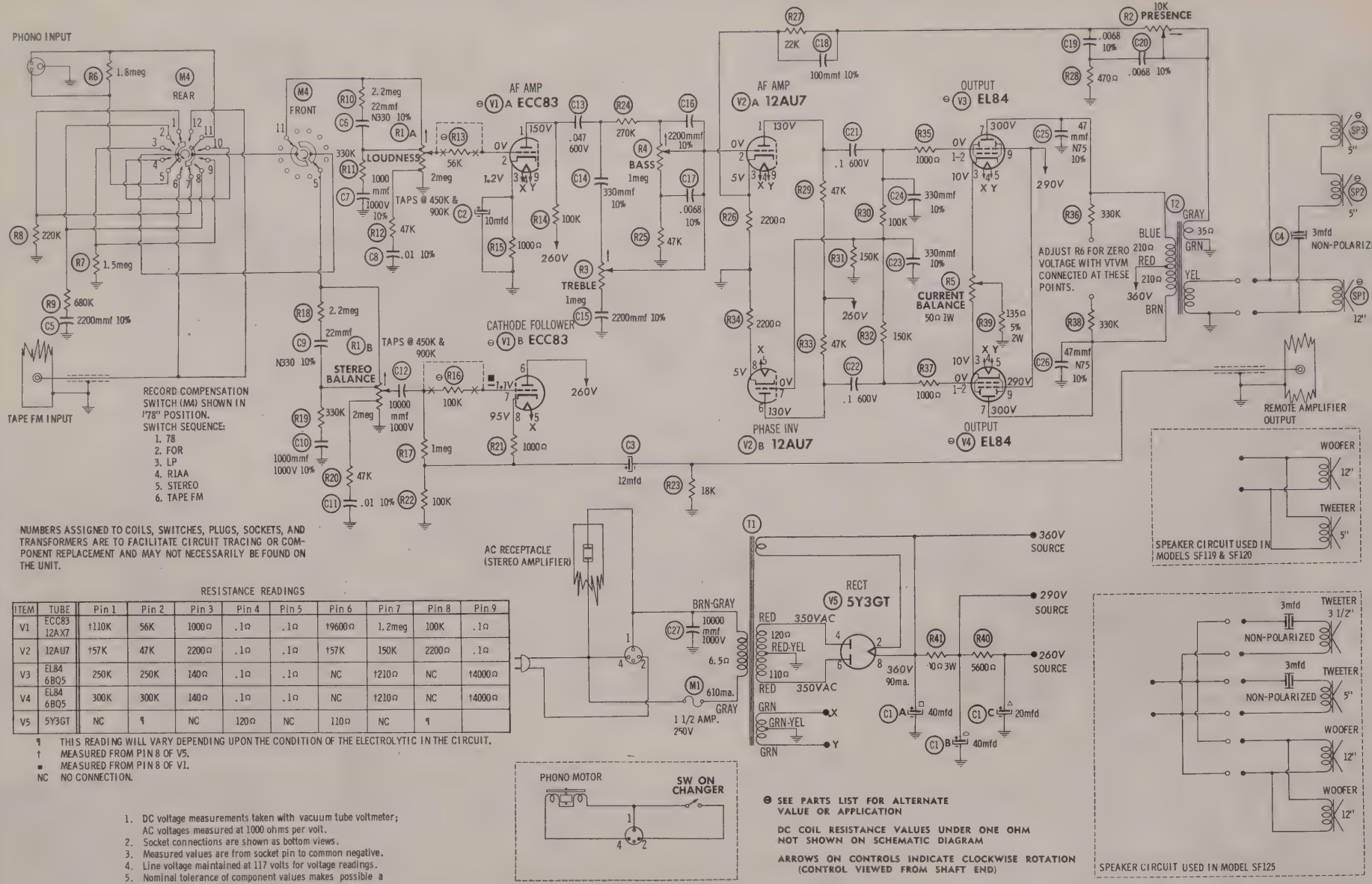
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83 12AX7	†110K	56K	1000Ω	.1Ω	.1Ω	†9600Ω	1.2meg	100K	.1Ω
V2	12AU7	†57K	47K	2200Ω	.1Ω	.1Ω	†57K	150K	2200Ω	.1Ω
V3	EL84 6BQ5	250K	250K	140Ω	.1Ω	.1Ω	NC	†210Ω	NC	†4000Ω
V4	EL84 6BQ5	300K	300K	140Ω	.1Ω	.1Ω	NC	†210Ω	NC	†4000Ω
V5	5Y3GT	NC	¶	NC	120Ω	NC	110Ω	NC	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V5.
■ MEASURED FROM PIN 8 OF V1.
NC NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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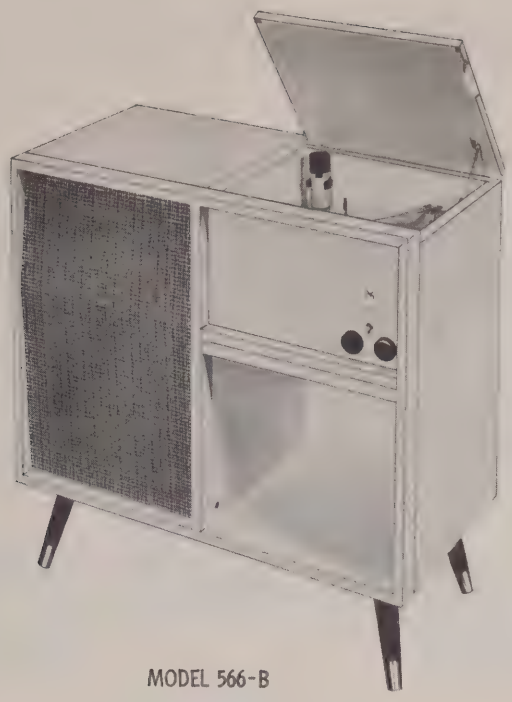
ZENITH MODELS SF119, E, R, SF120E, R, SF125, E, R (Ch. 5B23)

PHOTOFACT* Folder

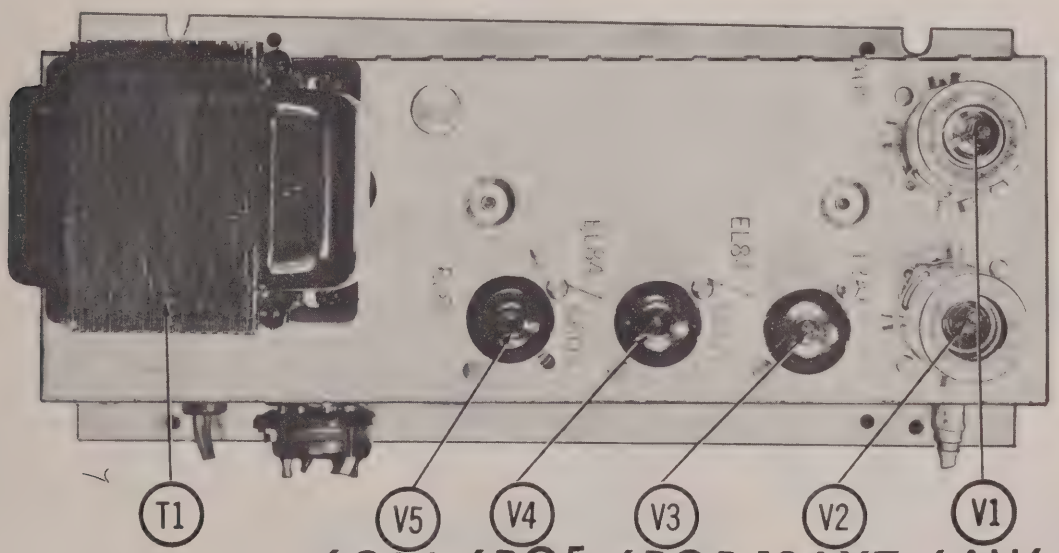
V-M MODELS 557-A,
562-B, 566-A, 566-B



MODEL 566-B

TRADE NAME	V-M Models 557-A, 562-B, 566-A, 566-B
MANUFACTURER	V-M Corp., Benton Harbor, Michigan
TYPE SET	AC Operated 5 Tube Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 60 Watts, .63 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE V-M 1200A —PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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J46

SET 452 FOLDER 16

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	6AU6A	
V2	AF Amp. -Phase Inv.	ECC83/ 12AX7	
V3	Output	6BQ5	①
V4	Output	6BQ5	①
V5	Rectifier	EZ81/ 6CA4	②

① Some versions may use EL84 in this application.
② Some versions may use 6X4 in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA V-M PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	450	12107	PR4-185	BBRQ0170. 5	WQ775		TVA-3720	
B	40	450							
C	10	25							
C2	10	400	12106	PRS450V10	BR1045	TC72	TD-10-450	TVA-1705	
C3	8	25NP	12090 ①	NP-PRS25V10	BBR16-90 † BBR16-90 †	TCN5010	TD-16-150 † TD-16-150 †	TVAS-1203. 8*	

① Not used on Models 557A & 562B
† Connect negative Leads together
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA V-M PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	5000			12083	BPD-005	DD-502	BYA10D5	B-250	10HKB-D5S *	Note 1
C5	5000			12083	BPD-005	DD-502	BYA10D5	B-250	10HKB-D5S *	Note 1
C6	200			12060-10	BPD-0002	DD-201	L10T2	B-320	10GAB-T2	Note 2
C7	1000			12066	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	Note 2
C8	1000			12066	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	Note 2
C9	10000			12062	BPD-01.	DD-103	BYA10S1	B-110	5HK-S1	Note 2
C10	.047	400		12009	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C11	500			12064-10	BPD-0005	DD-501	L10T5	B-350	10GAB-T5	
C12	.1	400		12008	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C13	100			12048	BPD-0001	DD-101	L10T1	UC-531	5GA-T1	
C14	10000			12062	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	Note 3
C15	10000			12062	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	Note 3
C16	10000			12062	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	Note 4

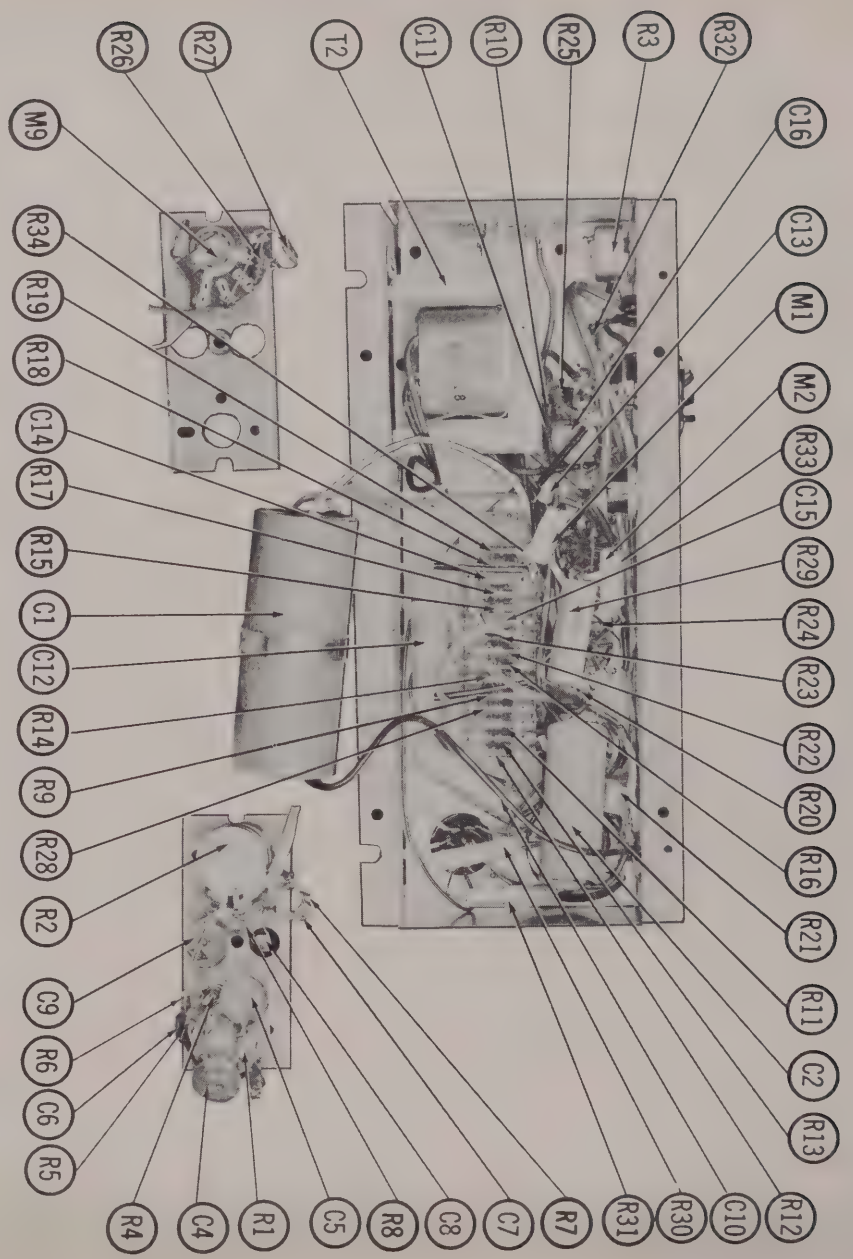
Note 1. Ch. 557-A and 562-B combine C4, C5, R4, R5 in one unit(Part #12569).
Note 2. Ch. 557-A and 562-B combine C6, C7, C8, C9, R6, R7, R8 in unit (Part #12570).
Note 3. Part of assembly(Part #16727).
Note 4. Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA V-M PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	12348 ①					Volume Taps ⓐ 150K & 300K
B	Switch							
R2A	1meg	½	12347 ②	F1-52		† UE3833		Bass
B	1meg	½		R2-52				Brilliance
R3A	150Ω	2(ww)	12361 ③	WN-200	A43-150			Hum Balance
B	Shaft			Not Req.	FKS-1/4			

† "STA-LOC" equivalent: FB16A, OS812, RU16A, IS1187
① Part #12342 used in Model 557A
② Part #12341 used in Model 557A
③ Not used in Model 566A.

CHASSIS BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	V-M PART No.	NOTES
R4	47K		11133-10	Note 1
R5	47K		11133-10	Note 1
R6	100K		11213-10	Note 2
R7	10K		10973-10	Note 2
R8	220K		11293-10	Note 2
R9	470K			Note 3
R10	150Ω		10533-10	
R11	390K			Note 3
R12	3300Ω			Note 3
R13	100Ω			Note 3
R14	1.2meg			Note 3
R15	100K		11213-10	Note 3
R16	68K			Note 3
R17	100K		11213-10	Note 3
R18	330K			Note 3
R19	1000Ω		10733-10	Note 3
R20	1000Ω		10733-10	
R21	200Ω		12338-10	
R22	330K			Note 3
R23	1000Ω		10733-10	Note 3
R24	1000Ω		10733-10	
R25	4700Ω		10893-10	
R26	2200Ω		10813-10	
R27	6800Ω			
R28	15K			Note 3
R29	500Ω		12337-10	
R30	2.2Ω		12336-10	
R31	2.2Ω		12336-10	
R32	10K		10973-10	
R33	33Ω			Note 4
R34	33Ω			Note 4

Note 1. Ch. 557-A and 562-B combine R4, R5, C4, C5 in one unit (Part #12569).
Note 2. Ch. 557-A and 562-B combine R6, R7, R8, C6, C7, C8, C9 in one unit (Part #12570)
Note 3. Part of assembly Part #16727
Note 4. Not used in some versions

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA V-M PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V@ .63A	420 VCT @.065A	6.3 VCT @3A	12552						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA V-M PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	8000Ω CT	4-6Ω	12553	22S56	A-3027	AU-609	A-3824	22S56	S-55X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA V-M PART No.	QUAM PART No.	NOTES
SP1	12"	PM	4-5Ω	15105 ①	12A6AZ4.8	① Models 566A, 566B
SP2	4"	PM	5-6Ω	15103 ①		② Models 557A, 562B
	8"	PM		15107 ②		③ Model 562B
	8"	PM		15108 ③		④ Model 557A
	5" x 7"	PM		15112 ④		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA V-M PART No. FUSE	V-M PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	1/2A 250V	18399 *		318.500		GKN1/2	
M2	3AG	1/2A 250V	18399 *		318.500 (3AG 1 1/2A 250V)		GKN1/2	

* Some versions may use 1/4 amp. in this application. Not used in Model 566-A.

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA V-M PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	REMARKS
M3	14877-C	89-T				Model 566-A
	16707-A	13-TB				Model 566-B
	16708-A	13-TB				Models 557-A, 562B

PHONO NEEDLE

(FOR REPLACEMENT iN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA V-M PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M4	16630			Model 566-A
	18612 (78RPM)	E-98 or E-98D	† W-102S	Model 566-B
	18610 (LP)	E-98X or E-98XD	† W-101STS	
	18626-A		† W-103STSS or †♦ W-103STDS	Models 557-A, 562B

* Metal † Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	V-M PART No.	NOTES
M5	Lamp	4653	#1847, Models 562B, 566A, 566B
	Lamp	16586	#12, Model 577A
M6	Switch	467	Power On-Off (SPST, Snap Type)
M7	Switch	15120	Stereo-Phono (4PDT, Slide Type)
M8	Switch	6975	Muting (DPST, Lead Type)
M9	Switch	15409	Contour (3 Position, Rotary Wafer Type)

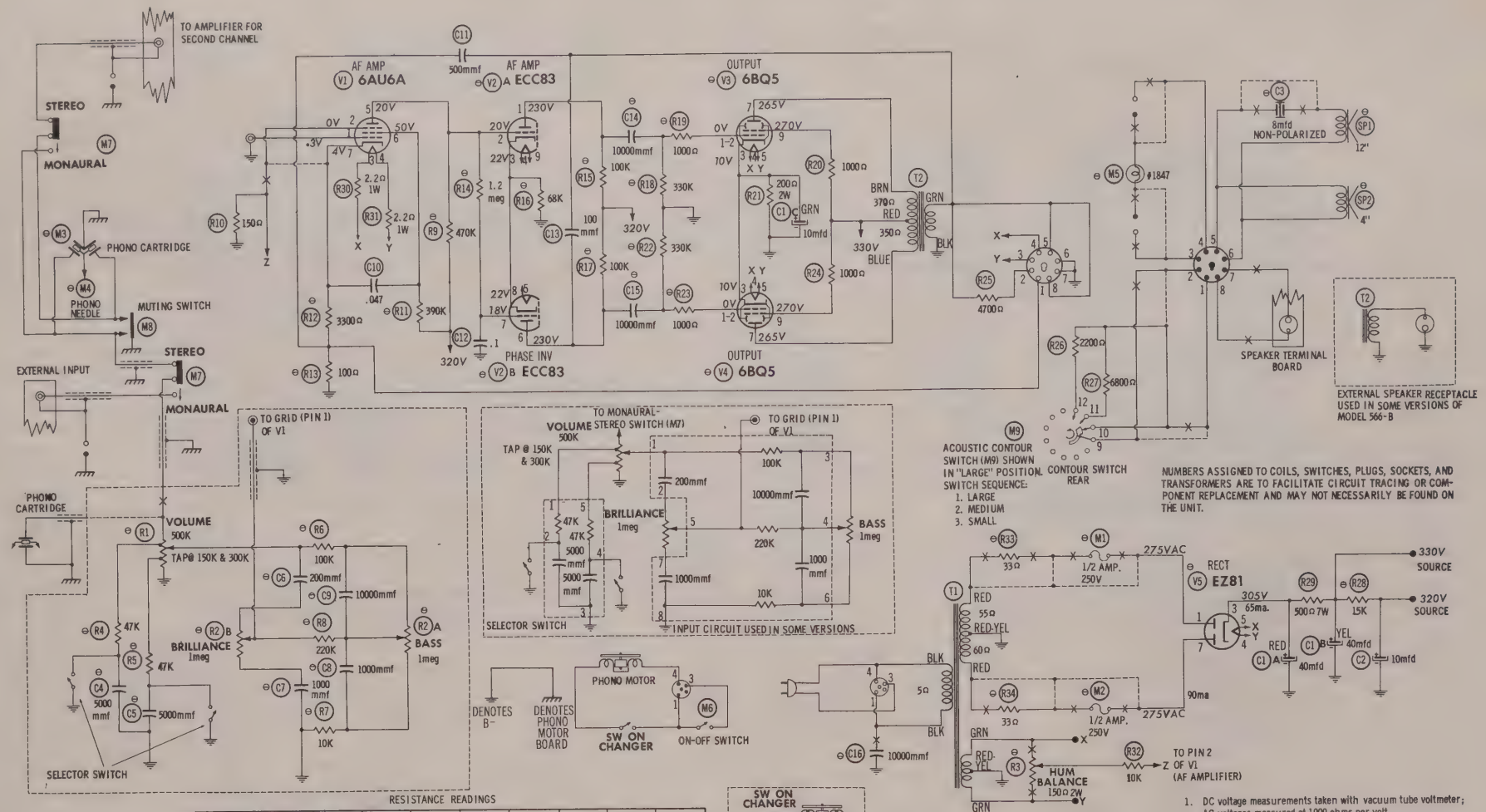
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	16791-A33	Power On-Off-Reject, Models 562B, 566B
Knob	16792-A33	Speed Control, Models 562B, 566B
Knob	16791-A58	Power On-Off-Reject, Model 557A
Knob	16792-A58	Speed Control, Model 557A
Cabinet	15406	Models 566A, 566B (Specify)
Cabinet	15260	Provincial, Models 566A, 566B (Specify)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7 1/2 Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)


TO AMPLIFIER FOR SECOND CHANNEL
STEREO
MONAURAL
PHONO CARTRIDGE
PHONO NEEDLE
MUTING SWITCH
EXTERNAL INPUT
AF AMP V1 6AU6A
AF AMP V2A ECC83
PHASE INV V2B ECC83
OUTPUT V3 6BQ5
OUTPUT V4 6BQ5
SPEAKER TERMINAL BOARD
EXTERNAL SPEAKER RECEPTACLE USED IN SOME VERSIONS OF MODEL 566-B
ACOUSTIC CONTOUR SWITCH (M9) SHOWN IN "LARGE" POSITION. SWITCH SEQUENCE: 1. LARGE 2. MEDIUM 3. SMALL
CONTOUR SWITCH REAR
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
VOLUME 500K
TAP @ 150K & 300K
BRILLIANCE 1meg
BASS 1meg
SELECTOR SWITCH
INPUT CIRCUIT USED IN SOME VERSIONS
PHONO MOTOR
SW ON CHANGER
ON-OFF SWITCH
DENOTES B-
DENOTES PHONO MOTOR BOARD
RECT V5 EZ81
HUM BALANCE 150Ω 2W
TO PIN 2 OF V1 (AF AMPLIFIER)
330V SOURCE
320V SOURCE
PHONO MOTOR CIRCUIT USED IN SOME VERSIONS OF MODEL 566-B

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AU6	INF	150Ω	1.8Ω	1.8Ω	†485K	†410K	3400Ω		
V2	12AX7	†115K	†485K	68K	.1Ω	.1Ω	†115K	†1.7meg	68K	.1Ω
V3	6BQ5	330K	330K	200Ω	.1Ω	.1Ω	NC	†870Ω	NC	†1500Ω
V4	6BQ5	330K	330K	200Ω	.1Ω	.1Ω	TP	†850Ω	TP	†1500Ω
V5	EZ81	88Ω	TP	¶	.1Ω	.1Ω	TP	93Ω	NC	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V5
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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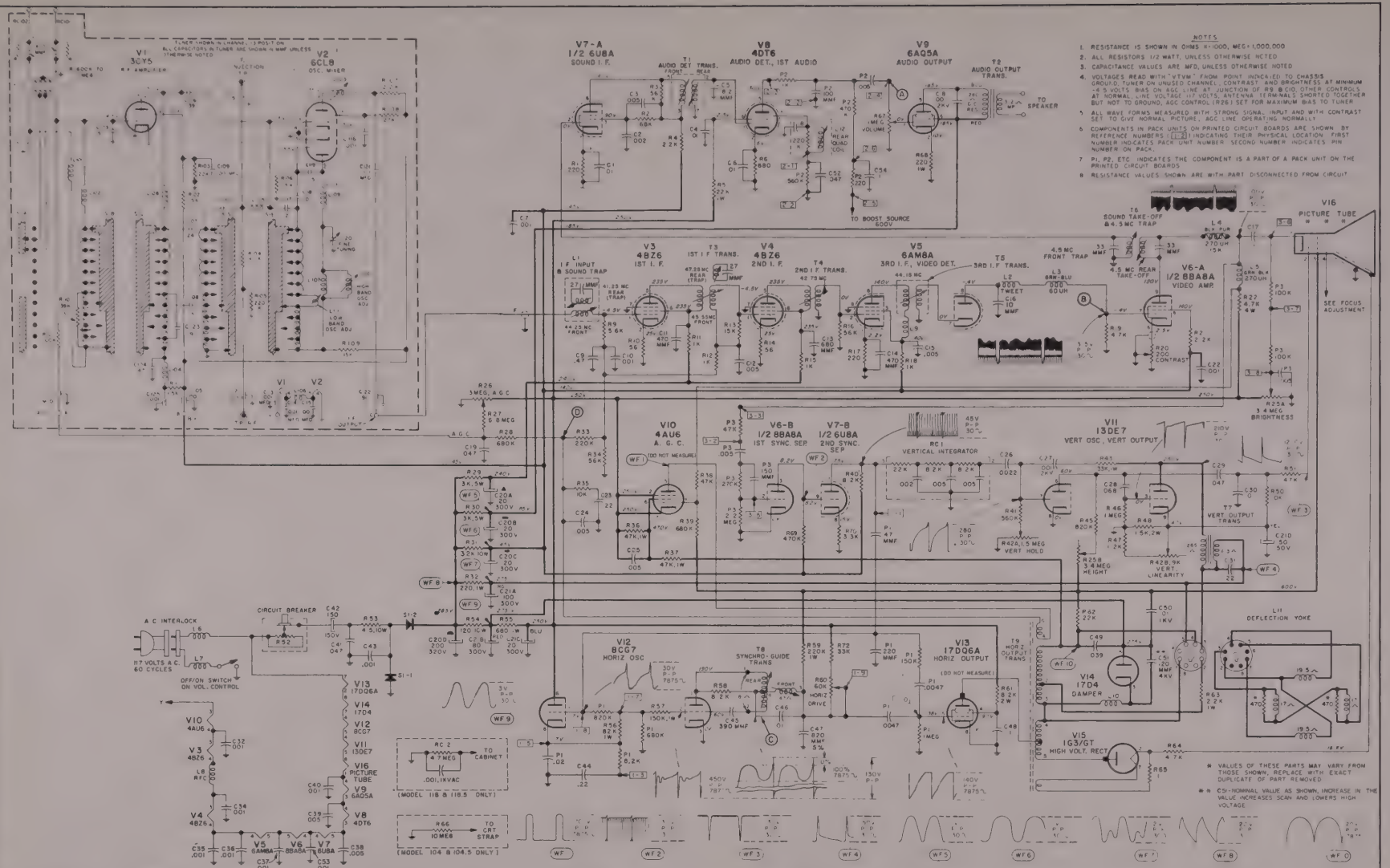
V-M MODELS 557-A, 562-B, 566-A, 566-B



SILVERTONE MODELS PC-104BL, GY, TA, PC-104-5BL, GY, TA, PC-118CH, L, PC-118-5CH, L, 104BL, GY, TA, 104-5BL, GY, TA, 118CH, L, 118-5CH, L (CH. 456.51640, 641, 528.51640, 641)

Schematic Diagram Courtesy of Sears, Roebuck and Company

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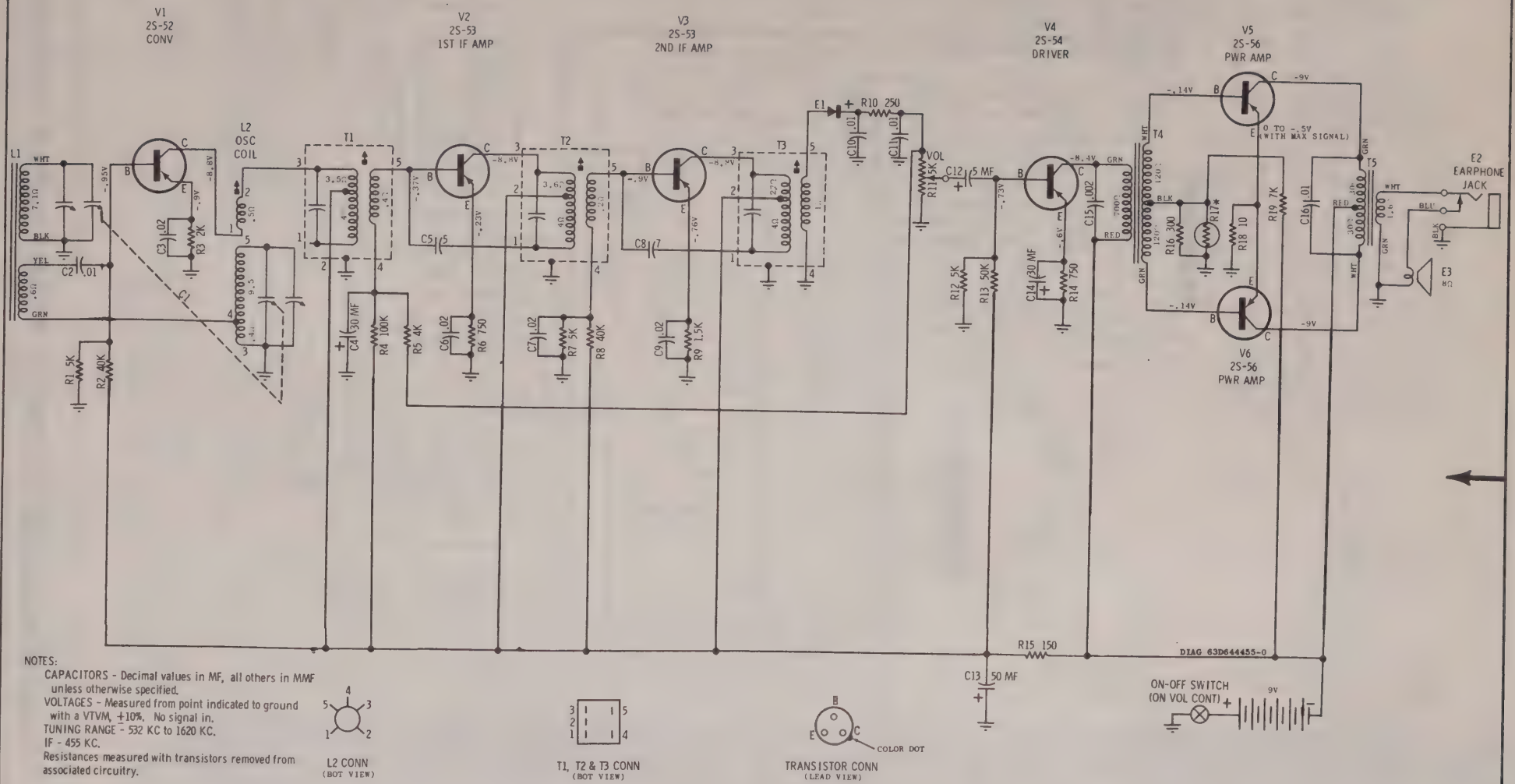


NOTES:
CAPACITORS - Decimal values in MF, all others in MMF unless otherwise specified.
VOLTAGES - Measured from point indicated to ground with a VTVM, ±10%. No signal in.
TUNING RANGE - 532 KC to 1620 KC.
IF - 455 KC.
Resistances measured with transistors removed from associated circuitry.

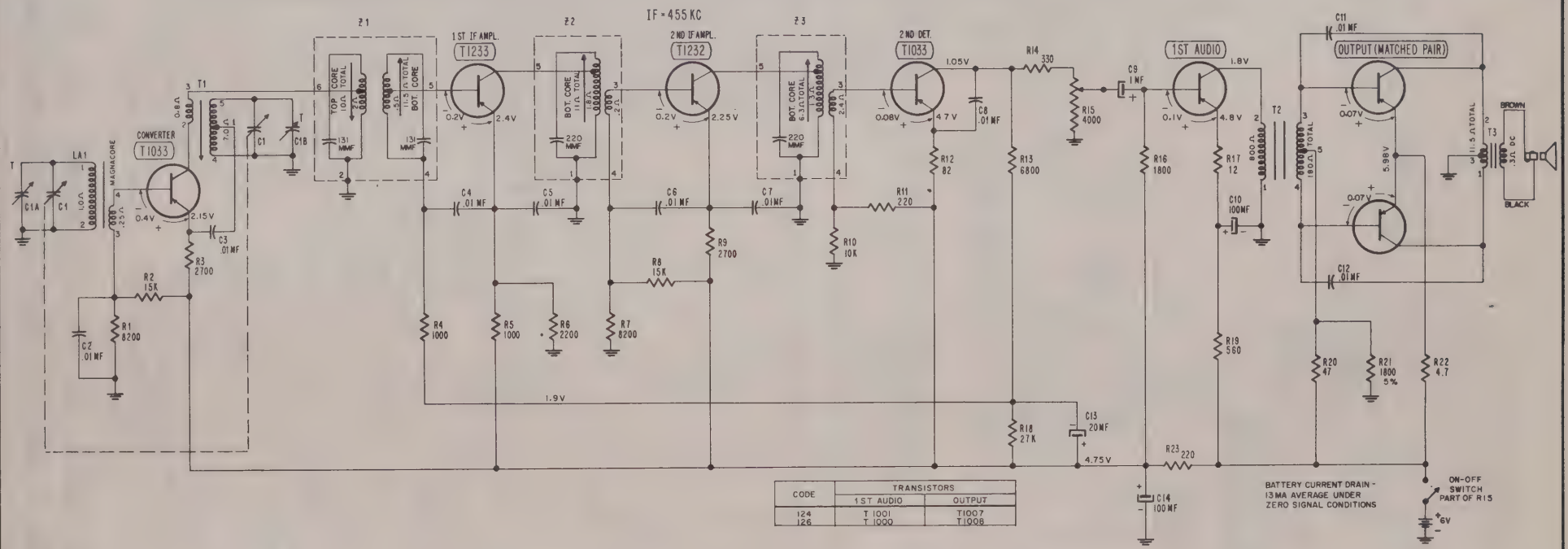
L2 CONN
(BOT VIEW)

T1, T2 & T3 CONN
(BOT VIEW)

TRANSISTOR CONN
(LEAD VIEW)
COLOR DOT

MOTOROLA MODELS X11B, E, G, R (CH. HS-759)

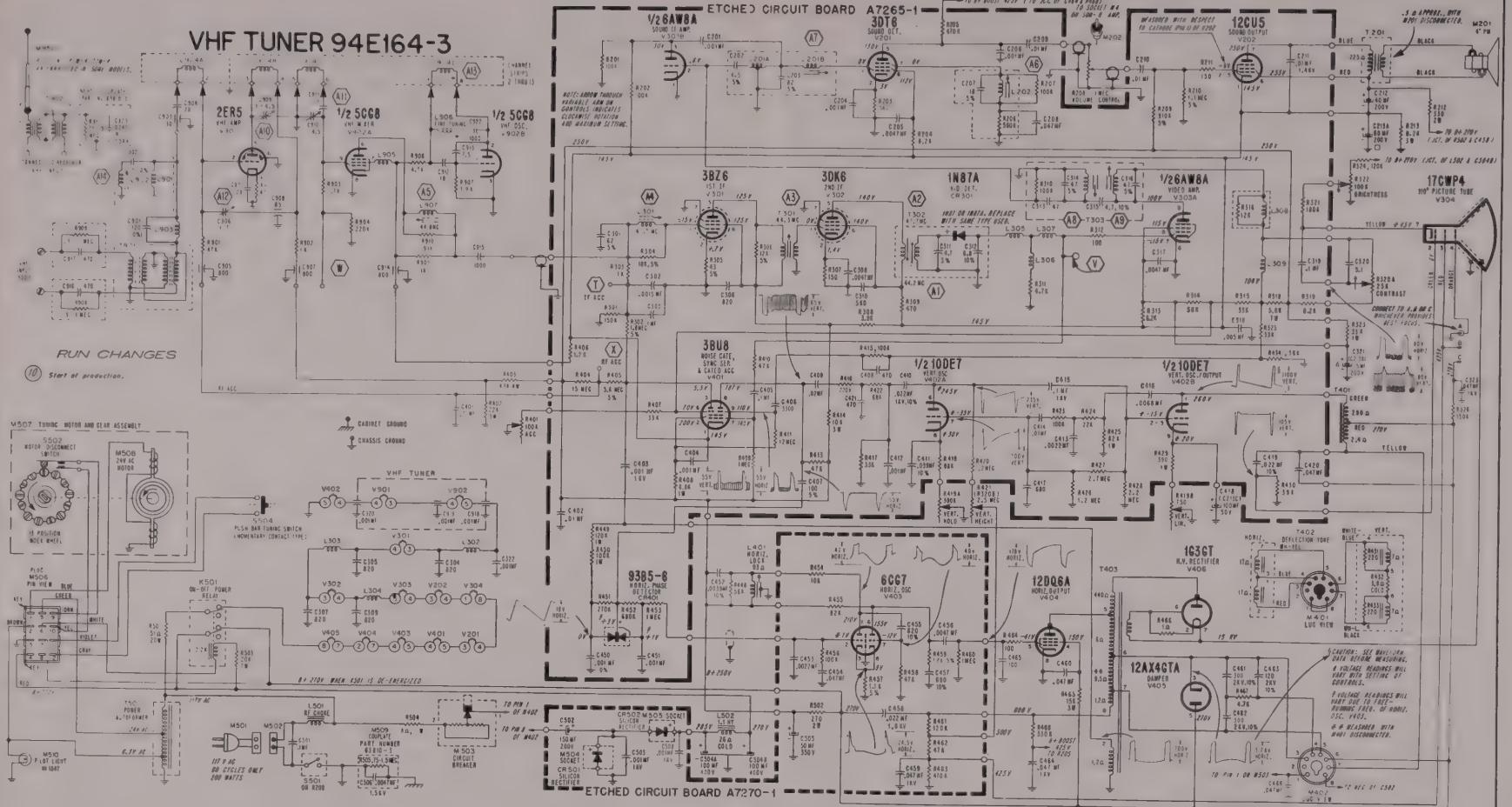
Schematic Diagram Courtesy of Motorola, Inc.

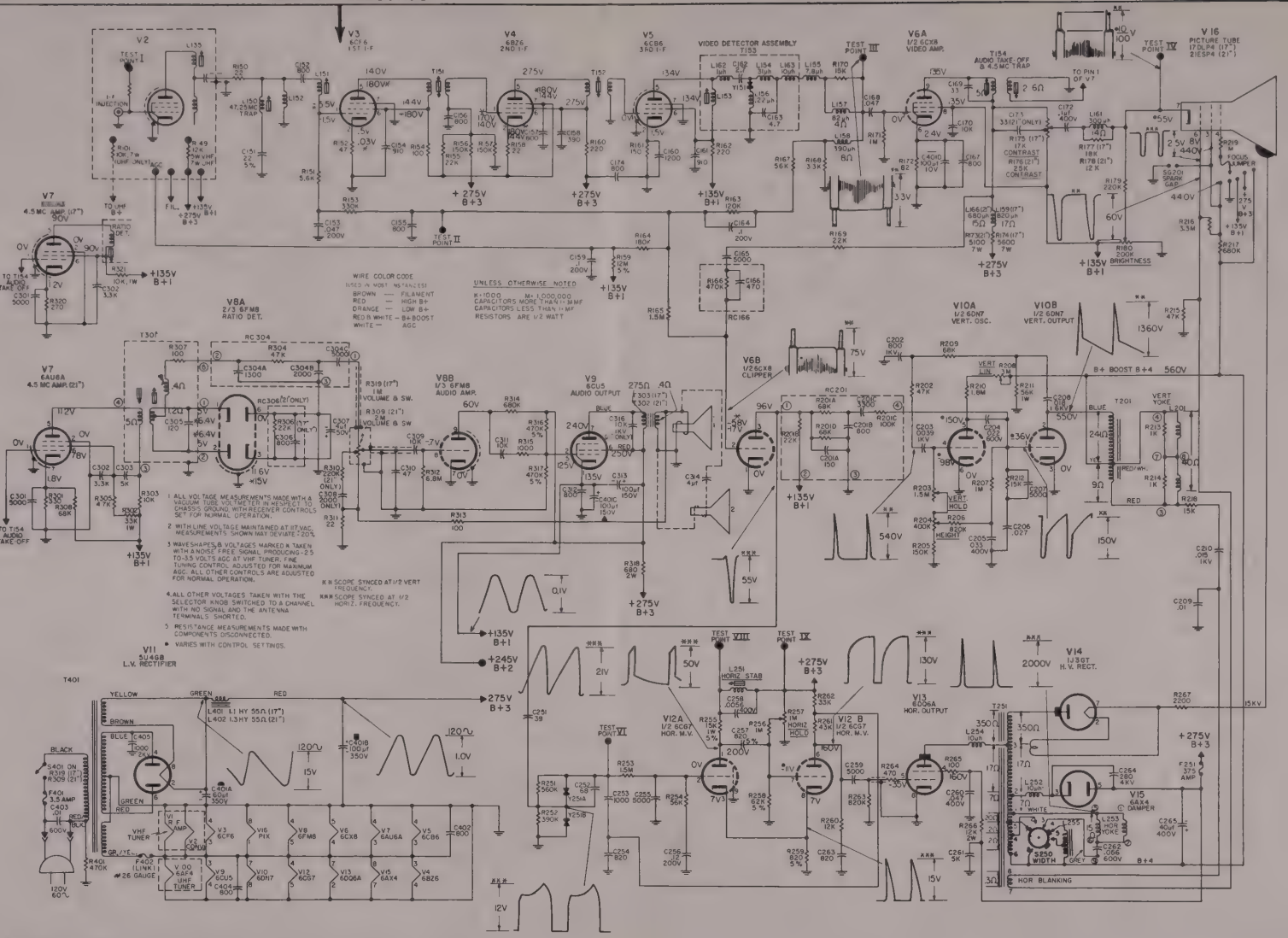


CODE	TRANSISTORS	
	1ST AUDIO	OUTPUT
124 126	T 1001 T 1000	T1007 T1008

PHILCO MODEL T-78 (CODE 124, 126)

Schematic Diagram Courtesy of Philco Radio Corp.


VHF TUNER 94E164-3
ETCHED CIRCUIT BOARD A7265-1
ETCHED CIRCUIT BOARD A7270-1
RUN CHANGES
(10) Start of production.
ADMIRAL MODELS PS17F12, PS17F13, PS17F22, PS17F23, (CH. 15B2, 15B3)
Schematic Diagram Courtesy of Admiral Corp.



GENERAL ELECTRIC MODELS 17T3310, 17T3315, 17T3316, 17T3320, 17T3321, 21T3430, 21T3431 ("M5" Line)

Schematic Diagram Courtesy of General Electric Co.

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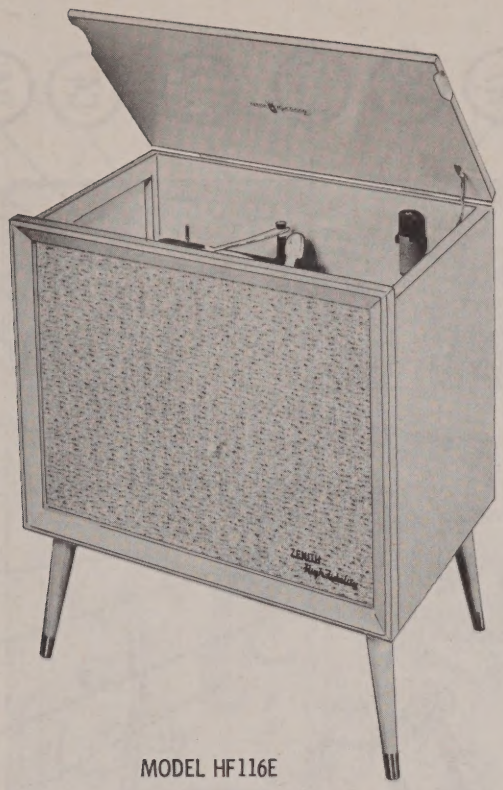
PHOTOFACT* Folder

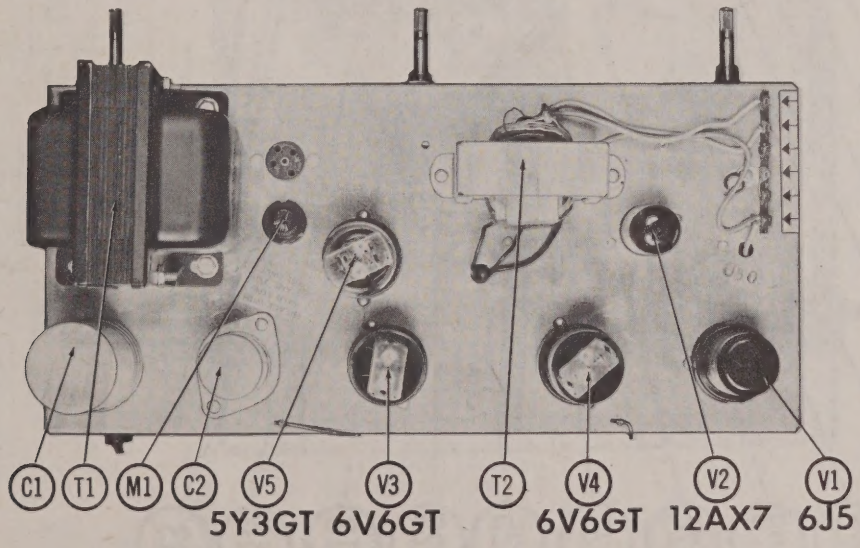
ZENITH MODELS
HF116E, R (Ch. 5B20)



MODEL HF116E

TRADE NAME	Zenith Models HF116E, HF116R (Ch. 5B20)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	AC Operated 5 Tube Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 59 Watts, .55 Amp. @117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE ZENITH S-14083 — PHOTOFACT SET 392 FOLDER 14



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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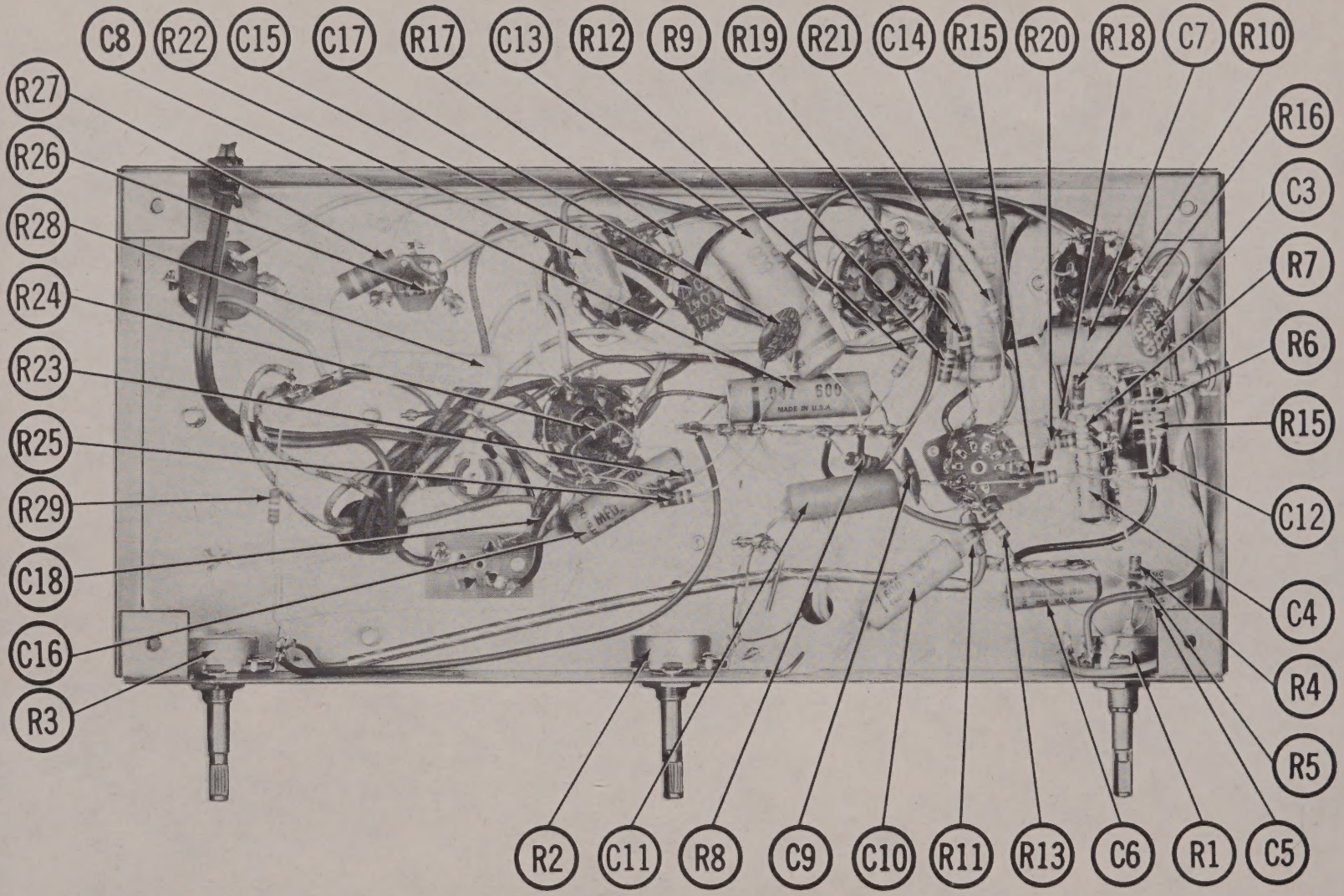


CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	6J5	
V2	AF Amp. -Phase Inv.	12AX7	
V3	Output	6V6GT	
V4	Output	6V6GT	
V5	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▬40	450	22-1612	AFH2-57	B0450	FP238	TMD-54	TVL-2764	
B	▲40	450							
C2A	▲20	350	22-2905	AFH2-37	B0300	FP227	TMD-35	TVL-2755	
B	■20	350							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	1500			22-12	BPD-0015	DD-152	BYA10D15	B-215	5HK-D15	
C4	.0068	200	N75 10%	22-2819				GEM-16268	2WF-D68	
C5	47		10%	22-2376						
C6	.0022	200	10%	22-2837					2WF-D22	
C7	.047	200	10%	22-2795					2WF-S47	
C8	.047	600		22-2794	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C9	1000			22-17	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C10	.022	600		22-2806	P688N-022	DD-203	CUB6S22	GEM-6122	6TM-S22	
C11	.047	200	10%	22-2795					2WF-S47	
C12	.033	200	10%	22-2801					2WF-S33	
C13	.1	600		22-2782	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C14	.1	600		22-2782	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C15	4700		10%	22-14	DI-4700			JL-247	5HK-D47S 10%*	
C16	.047	200		22-2792	P288N-047	DF-503	CUB2S47	GEM-2147	2TM-S47	
C17	4700		10%	22-14	DI-4700			JL-247	5HK-D47S 10%*	
C18	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	2meg	½	63-4067	BT-175		Q13-139XX	UDT296	Loudness. Taps ⓐ 500K, 1meg
R2A	250K	½	63-4391	B-51	A47-250K-Z	Q13-130	U44	Treble
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	3meg	½	63-4378	B-855	A47-3meg-S	Q11-140	U59	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R4	56K		63-1859	
R5	180K		63-1880	
R6	10meg		63-1953	
R7	330K		63-1890	
R8	18K		63-1838	
R9	18K		63-1838	
R10	680Ω		63-1778	
R11	470K		63-1898	
R12	220K		63-1883	
R13	3300Ω		63-1806	
R14	15K		63-1834	
R15	39K		63-1852	
R16	1meg		63-1911	
R17	220K		63-1883	
R18	220K		63-1883	
R19	220K		63-1883	
R20	3300Ω		63-1806	
R21	270K		63-1887	
R22	200Ω	2	63-4379	
R23	4700Ω		63-1813	
R24	150K		63-1877	
R25	4700Ω		63-1813	
R26	6800Ω		63-1820	
R27	5600Ω	2	63-1193	
R28	390Ω	7	63-4380	
R29	270K		63-1887	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	RATING SEC. 4	RATING SEC. 5	REPLACEMENT DATA ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ .55A	670 VCT ⓐ .075A	5V ⓐ 2A	6.3 VCT ⓐ 1.6A			95-1410	24R02U①	P-3152①		PC8409①	24R02U①	R-11A①

① Drill New Mounting Holes

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	8000Ω CT	6-8Ω	95-1622	22S56	A-2905	AU-606	A-3870	22S56	S-55X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ZENITH PART No.	QUAM PART No.	NOTES
SP1	10"	PM	7.0Ω	49-855	10A4Z7	
SP2	3 1/4x3 5/8" Electrostatic			S-23829		
SP3	3 1/4x3 5/8" Electrostatic			S-23829		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA ZENITH PART No. FUSE	ZENITH PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	1½A 250V	136-32	62-17 15-115 (Cap)	31201.5 (3AG 1½A 250V)	342001	AGC 1½	HKP

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA ZENITH PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	REMARKS
M2	142-87	93-T				

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

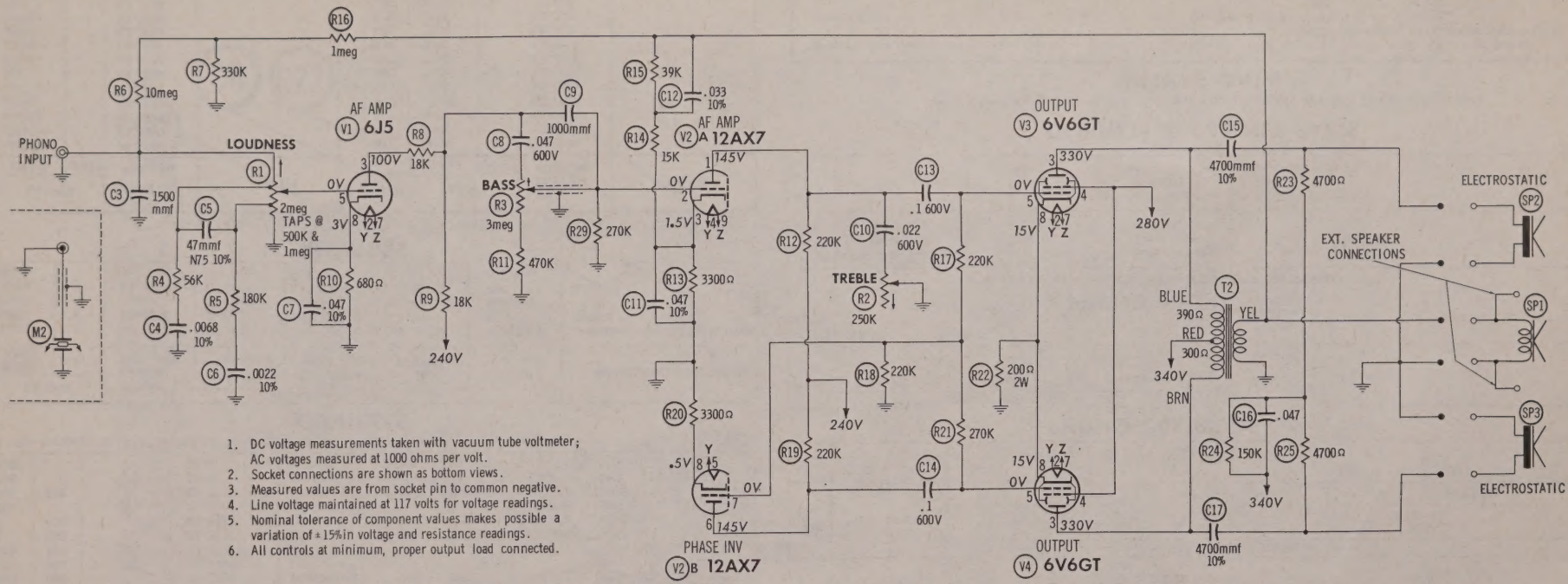
ITEM No.	REPLACEMENT DATA ZENITH PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M3			† W-201TPS * or ♦ W-201DS *	* Includes Cartridge † Jewel ♦ Diamond

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

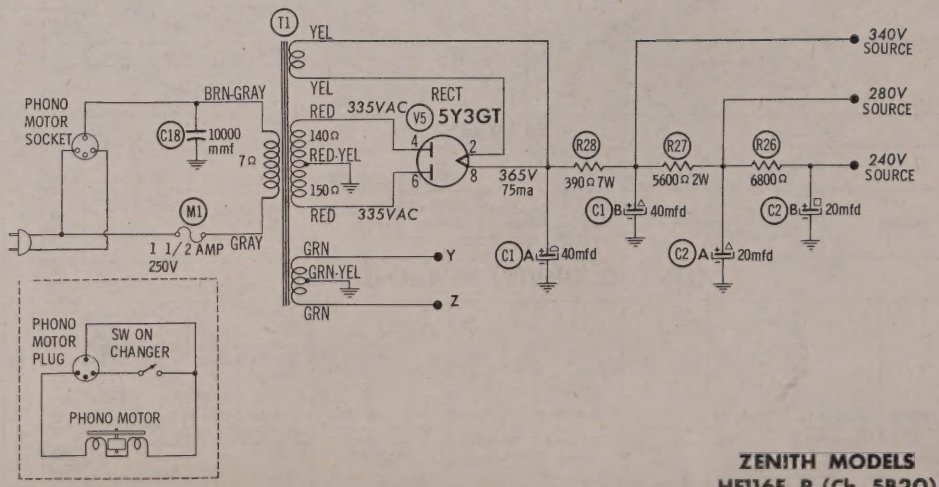


1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6J5	TP	.5Ω	†50K	TP	0Ω	TP	.5Ω	680Ω	
V2	12AX7	†230K	250K	3300Ω	.5Ω	.5Ω	†230K	220K	3300Ω	.5Ω
V3	6V6GT	TP	.5Ω	†780Ω	†6000Ω	440K	TP	.5Ω	200Ω	
V4	6V6GT	TP	.5Ω	†690Ω	†6000Ω	490K	TP	.5Ω	200Ω	
V5	5Y3GT	NC	¶	TP	140Ω	TP	150Ω	NC	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V5
NC NO CONNECTION
TP TIE POINT



Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ZENITH MODELS HF116E, R (Ch. 5B20)